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Why do some district hospitals in Nepal achieve better provision of comprehensive emergency obstetric and neonatal care services than others?

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**Why do some district hospitals in Nepal achieve better provision of
comprehensive emergency obstetric and neonatal care services
than others?**

Sarah Elizabeth Hepworth

A thesis submitted for the degree of Professional Doctorate in Health

University of Bath

Department of Health

May 2019

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A handwritten signature in blue ink, appearing to read 'Swallyn', with a long, flowing horizontal stroke extending to the right.**Declaration of authorship**

I am the author of this thesis, and the work described therein was carried out by myself personally, with the exception of field work in the case study sites which was done by Nepali data collectors (as detailed in Chapter Three). All other work within this thesis i.e. formulation of ideas, design of methodology, analysis and presentation of data was done by myself.

A handwritten signature in blue ink, appearing to read 'Swallyn', with a long, flowing horizontal stroke extending to the right.

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Abstract

Since 2004, the Government of Nepal has sought to increase availability of comprehensive emergency obstetric and neonatal care (CEONC) services at district hospitals. However, significant and persistent bottlenecks exist in the health system which prevent effective scale-up. A “quick fix” strategy to address bottlenecks and ensure that hospitals had resources to deliver CEONC 24/7 was the creation of a “CEONC Fund” to “top-up” routine hospital budgets. The intention was the CEONC fund should only be used for CEONC services, not for any other hospital purpose. In 2015, the government decided to include the fund as a long-term policy and expand its availability to all district hospitals. However, routine data on fund utilisation and service data is limited. What is available indicates that utilisation varies substantially by hospital and actual provision of CEONC services also varies widely.

This study aimed to understand why some district hospitals achieve a better provision of CEONC services than others. It employed a multiple case study design, purposefully selecting four district hospitals using an extreme case selection framework. It triangulated data from the districts with semi-structured interviews from central level key informants.

The study results show provision of the fund to hospitals has limited impact on CEONC availability. Several other factors in hospitals and the health system have greater influence on uptake of funding and service availability. The conclusion is, not only is a CEONC fund grant alone insufficient to ensure service availability, several other critical factors need to be taken into consideration to ensure that CEONC services are consistently and universally available. CEONC availability is heavily influenced by the quality of leadership and management of the hospitals and their capacity to maintain or develop the service as financial resources permit. Therefore, the fund’s utility as a sole mechanism to improve CEONC services is limited.

Acronyms

24/7	24 hours a day, 7 days a week
AA	Anaesthetist Assistant
BEONC	Basis Emergency Obstetric and Neonatal Care
BHCPF	Basic Health Care Provision Fund
CASP	Cochrane Critical Appraisal Skills Programme
CEONC	Comprehensive Emergency Obstetric and Neonatal Care
CI	Central Informant
CIAA	Commission for the Investigation of Abuse of Authority
DDC	District Development Committee
DFF	Direct Facility Financing
DG	Director General
DoHS	Department of Health Services
DHO	District Health Office
DHS	Demographic and Health Survey
DPHO	District Public Health Office
DSS	Direct Support to Schools
FHD	Family Health Division
FO	Field Observations
FY	Financial Year
HDC	Hospital Development Committee
HDI	Human Development Index
HFMC	Health Facility Management Committee
HM	Hospital Management
HMIS	Health Management Information System
HPI	Human Poverty Index
HPSR	Health Policy and Systems Research
HR	Human Resources
HSSF	Health Sector Services Fund
LMIC	Low and Middle Income Countries
MDG	Millennium Development Goals
MDGP	Medical Doctor General Practitioner
MeSu	Medical Superintendent
MMAT	Mixed Methods Appraisal Tool
MMR	Maternal Mortality Ratio
MNH	Maternal and Newborn Health
MoF	Ministry of Finance
MoFALD	Ministry of Federal Affairs and Local Development
MoHP	Ministry of Health and Population
MPDR	Maternal and Perinatal Death Review
MS	Medical Staff
NGO	Non-Governmental Organisation
NHSP-I	First National Health Sector Programme
NHSP-II	Second National Health Sector Programme
NHSS	Third Nepal Health Sector Strategy

NHSSP	Nepal Health Sector Support Programme
NHTC	National Health Training Center
NICU	Neonatal Intensive Care Unit
NPC	National Planning Commission
NPR	Nepali rupee
NRHM	National Rural Health Mission
NSI	Nick Simons Institute
OECD	Organisation of Economic Cooperation and Development
OT	Operating Theatre
PHN	Public Health Nurse
PHO	Public Health Officer
PSC	Public Services Commission
SBA	Skilled Birth Attendant
SDGs	Sustainable Development Goals
TA	Thematic Analysis
TABUCS	Transactional Accounting and Budget Control System
UN	United Nations
UNFPA	United Nations Population Fund
WHO	World Health Organisation

Chapter One: Introduction

1.1 Comprehensive Emergency Obstetric and Neonatal Care (CEONC)

Maternal mortality is a public health problem. According to the World Health Organisation (WHO) globally, 800 women die daily from preventable causes related to pregnancy and childbirth, with 99% in low- and middle-income countries (LMICs) (WHO, 2014a). One proven strategy for addressing maternity mortality is to provide access to basic emergency obstetric and neonatal services (BEONC) and referral to comprehensive emergency obstetric and neonatal services (CEONC). BEONC services comprise, provision of parenteral oxytocics, antibiotics and anticonvulsants; assisted deliveries; manual extraction of the placenta; removal of retained products and CEONC services comprise all those for BEONC plus caesarean section and blood transfusion (Campbell et al, 2006; Fournier et al, 2009).

CEONC provision, and in particular caesarean, has been developed in clinical practice as a life-saving procedure both for mother and baby. In 1985, the WHO set a target caesarean rate of 10–15% as theoretically optimal for balancing health outcomes and resource use (Betran et al, 2007). Additionally, a minimum necessary caesarean rate at population level was identified. This was 5% of normal births to avoid death and severe morbidity in the mother and up to 10% of normal births to show improvements in neonatal outcomes (Gibbons et al, 2010). Importantly, studies also showed maximum optimum caesarean rates i.e. whilst health outcomes improve with a rising caesarean rate when that rate is below 15%, they decline when it rises above 15% (Betran et al, 2007).

1.2 Management of health services

In LMICs coverage and provision of CEONC services is affected by many factors. Implicit in the definition of CEONC is that services are available 24 hours a day, 7 days a week (24/7) (Bailey et al, 2006; Paxton et al 2006; Worku et al, 2013). However, actual service provision varies greatly. The expectation is that on arrival at a health facility a mother will have access to the requisite medical care. This is frequently unmet. Bailey et al found, in their 2006 study on availability of life-saving obstetric services in 13 countries, that most hospitals were not fully

providing services. These countries included Nepal and others with similar health system challenges (e.g. India, Kenya and Mali).

Impediments to access exist on both the demand and supply for services. Demand impediments include, distance to services, cost, lack of information and cultural acceptability (including language barriers) (Tanahashi, 1978; Ensor et al, 2004). Supply impediments include inadequate operational management and health systems bottlenecks (Kerber et al, 2007)¹. Bottlenecks include limited or poorly trained staff, inadequate or intermittent financing; poor infrastructure, lack of drugs or equipment and suboptimal clinical practice (Rana et al, 2007; Kurniawan et al, 2013; Baker et al, 2014). A study covering Benin, Ecuador, Jamaica, and Rwanda showed a wide gap between current evidence based standards and current levels of provider competence (Harvey et al, 2004; Harvey et al, 2007). Many such bottlenecks affect the provision of CEONC services in Nepal.

In 2008, Puoane et al identified that a conjunction of favourable factors within a health facility could significantly affect quality of care and service provision. These included in-service training, induction of new staff, supervision and teamwork and feedback systems requiring strong leadership and management and opportunities for interaction and information-sharing. Similarly, business research suggests that management and leadership practices can have profound impact on productivity and outcomes in healthcare (Funk et al, 2008). In 2007 Bloom and Van Reenen assessed management practices at over 700 companies in developed countries. Using the same approach a study of 1,000 hospitals, Dorgan et al (2010) found an association between management practices, productivity, and outcomes.

1.3 Context of maternal health services in Nepal

In Nepal, the Maternal Mortality Ratio (MMR) has reduced significantly from 580/100,000 live births in 1995 to 239/100,000 in 2016 (MoHP et al, 2017b). During this period, substantial efforts were made to scale-up the health workforce and increase numbers of skilled birth attendants (Lerberghe et al, 2014). However, there remains a need to improve access to, and uptake of, facility birthing and hospital care (Devkota et al, 2011; Malla et al, 2011). In 2004,

¹ A bottleneck is defined as “that component of a system that limits the overall performance or capacity of the system” (Langley et al, 2009 p.490).

the Ministry of Health and Population (MoHP) committed to increasing CEONC service availability in hospitals (MoHP, 2004). By 2017, 88% of tertiary level hospitals, 54% of district-level hospitals, and 50% of private hospitals offered caesarean in their service mix (MoHP et al, 2017a).

Politically, Nepal is decentralising and developing a federalised state structure creating opportunities and risks for the development of CEONC services. However, there is a commitment expressed in the Nepal Health Sector Strategy 2015-2020 (NHSS), to ensure all district hospitals are providing CEONC services (MoHP, 2015a, 2015c).

In line with the WHO minimum necessary caesarean rate, the expectation in Nepal is that caesareans should account for no less than 5% of expected normal deliveries within a catchment area (Devkota et al, 2011). In 2011, the average caesarean rate in Nepal was 4.49%² (MoHP et al 2012). Whilst just below the minimum rate, this average hides large variations between urban and rural areas, richer and poorer women and better and less well educated women³ (Cavallaro et al, 2013). The 2017 Demographic Health Survey (DHS), identified that the proportion of births delivered by caesarean in Nepal has increased since 2011, from just under 5% to 9% in 2016 although this continues to hide the same variations. Higher caesarean rates for births in private facilities skew the proportions (MoHP et al, 2017b). These rates also mask variations in service availability throughout the year. A major challenge is to ensure that these services are consistently available 24/7.

In 2008/09, a special fund, the “Comprehensive Emergency Obstetric and Neonatal Care (CEONC) fund” was established by the MoHP to enable district hospitals to improve CEONC service availability 24/7. The fund provided “top-up” grant aid to enable hospitals to fill specific gaps in service provision because of inadequate budget allocations and to counter some systems bottlenecks. The fund’s remit was to provide financial resources for hiring contract staff, purchasing equipment, drugs and supplies, operating theatre repairs, and

² Caesarean delivery rates are expressed as percentages of live birth deliveries. The data presented is from the 2011 DHS in Nepal which was the most recently published DHS during the study formulation and data collection period. A subsequent DHS was published in November 2017 (MoHP et al, 2017b).

³ 20% of births to women with a School Leaving Certificate or above are by caesarean, compared with 5% to women with no education. Births to women in the highest wealth quintile are more likely to be by caesarean (28%) than women in the lowest quintile (2%).

information dissemination to communities to promote awareness on availability of services. The fund was initially piloted in six districts. This has been gradually expanded geographically, as the Government has added financial resources to support CEONC availability, and now covers all districts.

1.4 Rationale for Research

It was noted by Madon et al (2007) and Fryatt et al (2010) that weaknesses of health systems and management of those systems is a major barrier to providing effective healthcare in many LMICs. The need for this research, therefore, arises as the Nepali Government has extended the CEONC fund availability to all district hospitals, yet routine monitoring of the recipients at the time of data collection (i.e. 2015) showed substantial variation in fund utilisation and service provision. The specific reasons for these variations is unknown but they indicate weaknesses in both the health system and its management which would benefit from investigation. To date, understanding of these variations is limited to anecdotal reports and a 2011 service evaluation (Devkota et al, 2011). The evaluation was not an academic study, and did not consider achieving validity (internal, construct, generalisability or reliability) in its design.

The value of research is increasingly measured in how it creates impact. Through using a realistic approach to examining the issues confronting health services management, academic research can contribute to evidence-based policy making and management decision-making. Accompanying this, is an acknowledgement of the role of research in:

- improving new initiative efficacy designed to support health systems and health systems management;
- expanding and accelerating the development of an evidence-based approach to improving the effectiveness of health systems (Remme et al, 2010).

This study was purposefully designed as an academic research study (rather than service evaluation) to generate new knowledge of, and provide fresh insight into, the management and financing of CEONC services and to then generalise the knowledge gained to benefit the management and financing of these services in Nepali district hospitals. This study sits under the discipline of Health Systems and Policy Research (Chapter Three). The study does not

evaluate the provision CEONC services against a management standard but explores and identifies themes to understand how the CEONC fund (as an intervention), and relationships within the health system hierarchy, affect the availability of CEONC services. The benefit of undertaking academic research (rather than service evaluation) is the creation of empirical evidence of why variations in availability of CEONC services exist and allows comparison with international literature to understand the observed phenomena. Further advantages of academic studies are the rigour applied to the methodology and methods which allow for replicability and the ability to look at the application of accepted theory to guide the research and interpret the findings.

The need for evidence-informed policy-making is well established, particularly in health policy. Within Nepal, despite commitment and efforts by the MoHP to strengthen evidence generation and informed policy-making, limited progress has been achieved (Dhimal et al, 2016). Although there are notable exceptions, health policies with complex policy problems/environments, are often developed without utilising available evidence. A recent study by the Nepal Health Research Council identified that whilst there is a significant quantity of health research in Nepal, the quality of the research remains limited (*ibid*). Academic research can have significant impact on policy development, identifying new issues for the policy agenda, informing decisions about policy content and direction, or evaluating the impact of policy but it must demonstrate a rigorous academic approach to have impact (Hanney et al, 2003). For this case study research rigour is achieved through:

- ensuring the validity of the data
- the “appropriateness” of the tools, and processes of analysis.⁴

Few academic studies have investigated the leadership and management of CEONC services in Nepal. Some peer reviewed academic studies have looked at specific aspects of the health system, e.g. human resources and facility management. However, they have not explored how the different levels of the health system interact or how this impacts on service delivery. No studies were identified that have applied a management framework analysis to Nepal health services. Some parallels can be drawn with research from other LMIC contexts but this

⁴ For the approach taken to ensure the academic rigour see Chapter Three.

is insufficient to directly inform Nepali policy and practice. The CEONC fund arrangements are an example of a unique feature of the Nepal health system and policy environment.

1.5 Contribution to knowledge

This study applies a specifically developed novel theoretical model of organisational management, derived from the research of Puoane et al (2008) and Funk et al (2013), to four district hospitals providing CEONC services. It offers an original understanding of how both management practices within the district hospital, and relationships between the health service system levels, affect their ability to provide regular and reliable CEONC services. This study generates new knowledge on the functioning of the Nepali health system, and helps to inform the development of effective, outcome focussed, CEONC financing mechanisms and policy solutions recognising complex problems. Specifically, this research gives Nepali policy makers hard data to make decisions about the CEONC fund design and related managerial reforms, particularly given the move to federalism. During the research period (2014-2018) the governmental organisational context has changed but the study remains relevant because the issues identified still need to be addressed to secure the successful delivery of CEONC services and to prevent the gains made in maternal health from being lost.

1.6 Thesis structure

Chapter Two summarises theory and research related to the allocation of funding and grant mechanisms from central to sub-national levels in different countries and the literature on the management and leadership practices in health facilities. It draws on research principally from LMICs in the health and education sectors observing devolved and ring-fenced funding mechanisms.

Chapter Three describes the methodology and methods of the study and explains the philosophical position of the research and the discipline under which it sits. Drawing on the literature, a novel theoretical framework is developed forming the basis of data collection and data analysis. Data collection and analysis methods are described, and ethical issues and limitations of case study methodology are discussed.

Chapter Four presents the results of the study through cross-case analysis comparing the four hospital findings to the theoretical framework, triangulating against data from central level interviews. Key factors are identified that appear to influence hospital capability to deliver CEONC services which the MoHP should consider.

Chapter Five compares the findings with the existing literature and specifically answers the research questions identified in Chapter Two. Recommendations for policy and practice are proposed and study strengths and limitations reviewed including research scope and avenues for further research.

Chapter Two: Literature Review

2.1 Introduction

This chapter starts with an outline of maternal and newborn health (MNH) services in LMICs and specifically in Nepal along with an overview of the Nepali health system to help the reader locate the literature review with the broader MNH and Nepali contexts (see Appendix 7 for a detailed description). The chapter then moves on to an explanation of the search strategy and critically reviews literature relevant to facility financing mechanisms which bear similarity to the CEONC fund, management, leadership practices and human resource (HR) management in LMICs in health, and education sectors. This examination demonstrates the need for further research in this area and outlines the areas where knowledge and understanding are lacking particularly in relation to Nepal. The research questions, aims and objectives for the study are then defined. This provides the theoretical basis for the conceptual framework developed in Chapter Three.

2.2 Maternal and newborn health

Maternal and neonatal morbidity and mortality is a major global public health problem and the leading cause of mortality of women of reproductive age worldwide (Fournier et al, 2009; Asamoah et al, 2011; Shrestha et al, 2014). Globally, an estimated 300,000 maternal deaths occur annually of which nearly 75% are preventable (Karlsen et al, 2011; Shrestha et al, 2014). Most maternal deaths occur intrapartum (during labour and delivery) or in the first 24 hours postpartum. The complications that lead to these deaths present a complex challenge to manage (Campbell et al, 2006). In developed, and some developing countries, substantial reductions have occurred (90-99%) in the risk of maternal death, demonstrating that successful strategies for improving maternal health outcomes do exist. Principally, they are intrapartum strategies where women routinely choose to deliver in a health centre with skilled and trained midwives as the main specialists, supported by teams of other skilled attendants (*ibid*). These strategies include early detection and management of problems, including life-threatening ones (*ibid*). The availability of basic and comprehensive *emergency* obstetric and neonatal care (BEONC and CEONC) is crucial for maternal and newborn survival

(Kerber et al 2007; Fournier et al, 2009; Worku et al 2013, Shrestha et al 2014). These are a set of interventions used to treat direct obstetric complications that cause roughly 80% of maternal deaths globally, i.e. severe bleeding; infections; high blood pressure during pregnancy and complications from delivery (WHO, 2015). BEONC and CEONC are a health centre based intrapartum-care strategy that provides expert resources to treat these complications 24/7⁵. BEONC can be available at most health facilities including primary level facilities, but CEONC requires 24/7 access to surgical facilities and needs to be in secondary or tertiary level hospitals. However, actual provision varies greatly and the expectation a mother will have access to the requisite medical care and skilled professionals on arrival is frequently unmet (Bailey et al, 2006, Paxton et al 2006; Worku 2013). Bailey et al's study of 1906 health facilities in 13 LMICs, including Nepal, found that most hospitals were not fully providing services. The Bailey research surveyed a sample of health facilities in each LMIC. This varied in scope from 17 facilities in three districts in Kenya to a national sample of 510 facilities in Morocco. In some countries, the sample included all hospitals but only a selection of primary level facilities. The research attempted to include both private and public sector provision, but private facilities in some countries were not responsive. A functioning CEONC facility was judged by the performance of both caesarean and blood transfusion at least once in the previous 3-month period.

Hospitals were more likely to report performing the services associated with BEONC and CEONC than lower level facilities. At hospital level, caesarean provision varied substantially. 100% of the surveyed hospitals in Mozambique and Nicaragua had performed a caesarean in the 3 months prior to the survey, but just 33% of the surveyed hospitals in Rajasthan, India. In Nepal, 36% of hospitals sampled had provided a caesarean in the previous 3 months. The survey did not look at facility readiness to provide BEONC or CEONC services i.e. if a case presented would the facility have available the requisite staff, drugs, equipment and infrastructure to be able to respond. Including this would have increased the robustness of the survey data, since it would have provided an immediate snapshot of the facility's capabilities and reduced reliance on the facilities records of services provided, which were not always available. Additionally, despite all the included countries being LMICs, they vary

⁵ The services that comprise BEONC and CEONC are noted in Chapter One

substantially in terms of political, environmental and social contexts. This research provides a useful indication of the provision of BEONC and CEONC services. However, the variation in sampling between countries and the lack of a contextual analysis means that generalisation of the findings is not possible.

Despite limitations, Bailey's research identified that common impediments to access and provision of services existed on both supply- and demand-side of services. On the demand-side, access was limited by acceptability of services, limited contact, lack of demand, distance to services, cost, lack of information and cultural acceptability (including language barriers). On the supply-side, poor uptake was the result of inadequate operational management and systemic health system problems.

Impediments to access and provision of services are described as 'bottlenecks'. An understanding of bottlenecks affecting CEONC services in Nepal is critical to understanding the impediments to successful coverage of CEONC services. The implications of Bailey's research are that unless bottlenecks are targeted, efforts to expand CEONC services will have little effect.

Nepal has made steady progress in improving citizen health and in meeting most of the health-related Millennium Development Goals (MDGs)⁶ (Shrestha et al, 2014; MoHP, 2015b), particularly in child survival and improvements in maternal health, MDGs 4 and 5 (MoHP 2015b). Nepal has experienced a rapid decline in MMR which has fallen 70% from 790 in 1990 to 239 in 2016 per 100,000 live births (WHO et al, 2014; MoHP et al, 2017b). The under-5 child mortality rate fell by 72% between 1990 and 2016. However, neonatal mortality did not reduce proportionately, with only 58% reduction in neonatal mortality rate for the same period (WHO et al, 2014; MoHP et al, 2017b).

The Nepal Health Sector Plan (NHSP-I, 2005-2010) committed the government to increase access to BEONC and CEONC services (MoHP, 2004) with BEONC being delivered in primary health care centres, which provide preventive and basic primary care at the village level (Bhusal et al, 2013). The district hospital, (present in all 75 districts and mandated to provide

⁶ The United Nations Millennium Development Goals are eight goals that all 191 UN member states agreed to try to achieve by the year 2015 to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women.

secondary and tertiary care services with inpatient services in addition to primary care) was identified as the focal delivery point for CEONC (*ibid*). This same focus on the provision of BEONC and CEONC services continued in the second and third health sector plans (NHSP-II, 2010 – 2015 and NHSS, 2015-2020) (MoHP, 2010; 2015c). Specifically, in the NHSS, the government committed to achieving 100% of district hospitals with at least one CEONC site and defined through the basic healthcare package that management of complicated deliveries including caesarean and blood transfusion is a service that should be available at <50-bed hospitals (MoHP, 2015c).

Despite the policy of 2005, a 2009 study by the MoHP identified that key challenges in the delivery of emergency obstetric care remained (Suvedi et al, 2009). This study aimed to understand the causes of death of women of reproductive age, especially those dying from maternal causes. It identified that, in eight study districts, 41% of pregnancy related deaths occurred in a health facility and, of these, over 80% of women who died from maternal causes were emergency admissions and in a critical state on admission: 18% died within four hours of arrival, 39% within the first twelve hours and 53% within the first 24 hours. The research had a high degree of rigour and reliability using a mixed methods approach. Like Bailey (2006), Suvedi's study identified that critical health systems bottlenecks contributed to an inability to adequately treat the obstetric complications at the facility level (*ibid*). These bottlenecks included inadequate resourcing, both financial and human, poor infrastructure and lack of equipment (*ibid*).

To improve CEONC service provision the MoHP introduced a special fund for emergency obstetric care in the financial year (FY) 2008/09. This fund (the CEONC Fund) allocated to selected district hospitals a CEONC specific 'top-up' grant (see Appendix 8 for a brief overview of health financing mechanisms). Responsibility for managing this grant was initially devolved to districts who would make spending decisions based on their local context and needs (Devkota et al, 2012). (Subsequently, limitations were placed by the MoHP on how the fund could be used.) The fund was piloted in 6 districts in 2008/09; distribution was then gradually expanded. By 2013/14 the CEONC fund was being provided to 34 districts and 65 districts in 2015/16. The 2020 target is for all 75 districts to benefit from this fund.

2.3 Search strategy

A comprehensive literature review was undertaken at the start of the research and then updated at two subsequent points:

- i.) Before undertaking empirical work to inform the research questions and design (2013);
- ii.) Post data analysis to help explain the findings (2016); and
- iii.) During writing-up to ensure inclusion of any recent literature (2018).

Web of Science, PubMed, ScienceDirect, JSTOR, SCOPUS and SSRN were searched for published literature using the following search terms for the initial literature review and all subsequent updates: "District Hospitals", "Hospital Management", "Leadership", "Health Facility", "Health Care Finan*", "Health System" and "Nepal". Because of the significantly changing political environment in Nepal following the civil war, the search was limited to 2006 onwards. A full literature search from 2006 onwards was undertaken in 2016 and 2018 to ensure that no relevant literature had been missed in the prior searches. The references included in all quoted articles were also reviewed for additional appropriate citations (Bowling, 2009). The summary of the search results from the final search phase are presented in Table 1.

Table 1: Literature search findings

Search Terms	Results							Total
	Web of Science	Pubmed	Science Direct	JSTOR	SCOPUS	SSRN	snowballing	
District Hospital AND Hospital Management	19	12	5	18	248	9	2	313
District Hospital AND Leadership	37	32	2	112	42	1	2	228
Health Facility AND Health Care Finan*	7	14	3	2	43	30	0	99
Health System AND Nepal	113	174	20	186	152	15	9	669
								1309

Because potentially relevant knowledge isn't always reported adequately in academic articles, grey literature was included in this review (specifically government documents, multilateral reports, evaluations of facility financing schemes and consultancy reports) (Table

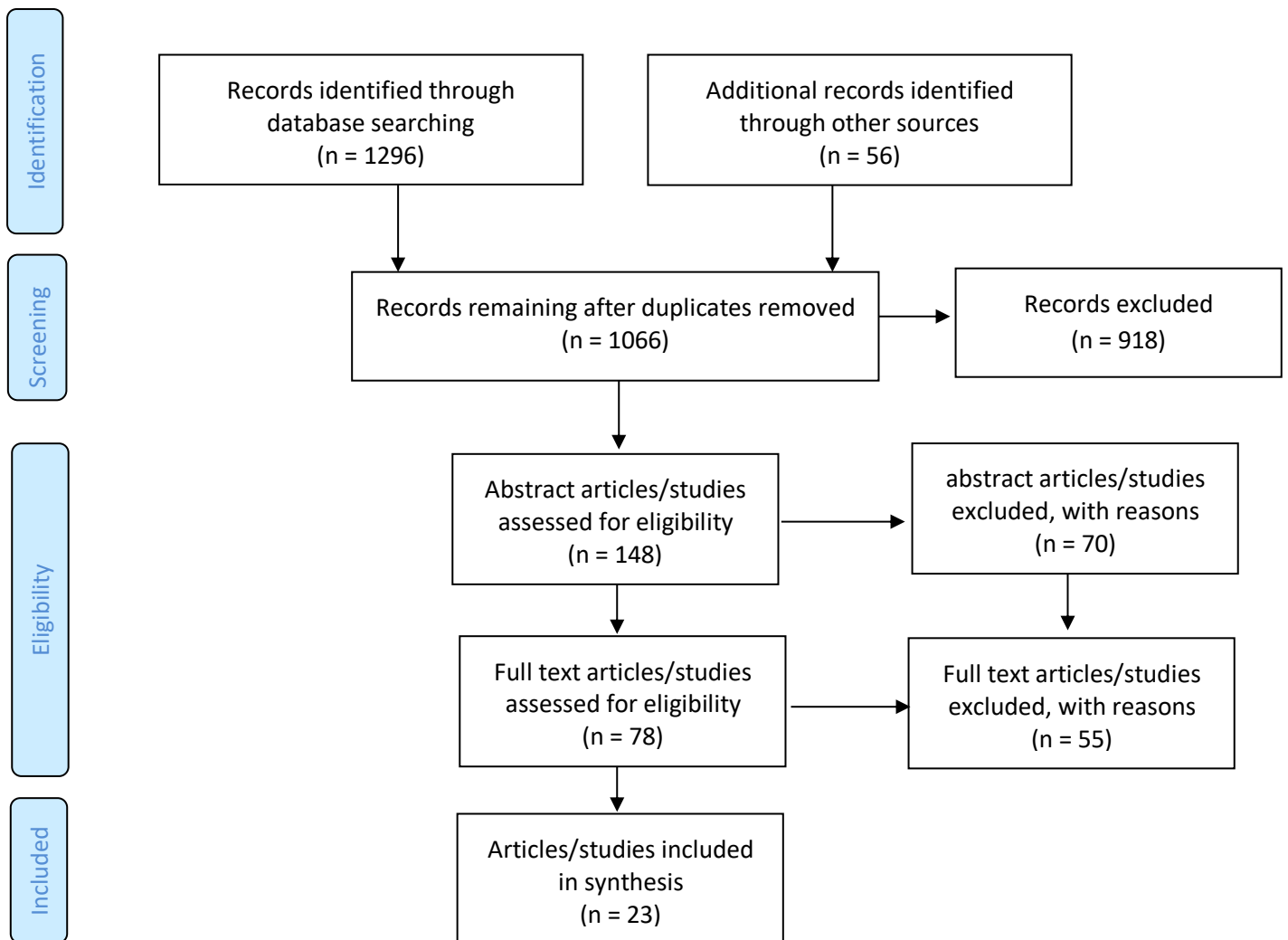
2) (Adams et al, 2016). Google was searched for evaluations of facility financing mechanisms; the Nepal Health Sector Support programme website was searched for consultancy reports and the MoHP website was search for policy documents.

Table 2: Grey literature

Type of grey literature	Number
Consultancy Reports	15
Nepal Government policy documents	8
Multilateral reports (e.g. WHO, World Bank)	14
Other country government reports	2
Websites	2
Conference Papers	1
NGO reports	1
Total	43

The first search phase identified 1076 references, the second 1185 and the final identified 1352 (i.e. 1309+43). A first review excluded duplicates, articles not in English, macro level studies, those with no full text available or related to high income countries. A second full text technical review excluded those related to clinical case management, not relevant to hospital leadership, unrelated to grant mechanisms, or maternal health or district hospitals (Figure 1 shows the process of literature captured for analysis from the final search in 2018).

Figure 1: Flow diagram of literature captured for analysis



A table of included studies was formulated to keep a transparent record of information; citation, summary of publication, list of countries, methodologies, results and conclusions referred to in the text (Appendix 9). Of the studies included the majority were mixed method studies (n=15), followed by qualitative studies (n=7) and only one (n=1) quantitative study. The country references were either predominantly from, or relevant to, LMICs using the World Bank definition (2017) (Table 3).

Table 3: Country of research

Included in this research after applying exclusion criteria (n=23)		
Country of Research	Total	Income level
Nepal	5	Low
India	1	Lower middle
Ghana	2	Lower middle
Kenya	5	Lower middle
South Africa	3	Upper middle
Cameroon	1	Lower middle
Vietnam	1	Lower middle
Nigeria	1	Lower middle
Multi-country	4	mixed

Income data source: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>

Within the context of a review of policy instruments, grey literature was expected to feature as a source because of the nature of the topic and the audience of LMIC government officials with limited access to journals. However, where grey literature was included, it was reviewed to ensure that it adhered to the tenets of transparency and rigour (Adams et al, 2017). All articles/studies were assessed utilising either the Mixed Methods Appraisal Tool (MMAT) (Hong et al, 2018) or qualitative Cochrane Critical Appraisal Skills Programme (CASP) tool (CASP, 2018) depending on the research methodology. These tools were chosen as they are designed specifically for healthcare interventions. An assessment against these tools is noted in Appendix 9 to highlight the credibility of included studies, or where there are limitations, they are understood and appropriate caution applied when utilising the results.

It was noted that there was a shift in the focus of the literature between the initial search in 2013 to the final search in 2018. Earlier research had a greater focussed on management practices and the processes involved in management, whereas later studies investigated a more intangible concept of leadership.

2.4 Literature Review Findings

The literature review draws on research on facility funding mechanisms, HR management and facility management and leadership. The key findings from the review highlighted that financing mechanisms, if flexibly applied, can have a positive impact on the provision of services. However, they need to be predictable, consistently available and have clear accountability mechanisms. Critically, there is also a need to ensure that management capacity and leadership is in place to be able to utilise them effectively. Maintaining a stable

workforce is critical to the provision of services, however, this is again underpinned by facility leadership (supported by central level policies) implementing effective HR strategies which motivate and support personnel. Overall, the literature highlighted that management and leadership are central to successful utilisation of financing mechanisms and overall that there is a relationship between effective leadership and management and increased hospital performance, both in service availability and health outcomes. These findings are explored further below.

2.4.1 Facility funding mechanisms

This section critically analyses the literature on facility funding mechanisms. It draws on academic and grey literature from the health and education sectors and from a range of LMICs.

In Kenya, to overcome deficiencies in health facility funding arrangements the 'Direct Facility Financing (DFF)' mechanism was developed (Opwora et al, 2009). The DFF was piloted in one province from 2005 and then scaled up nationwide as the Health Sector Services Fund (HSSF) from 2010. The HSSF isn't a targeted grant like the CEONC fund as the funds could be used to support all health facility activities. However, like the CEONC fund, facility managers could decide how to address specific local needs (*ibid*). HSSF funds are allocated across districts by a formula using the Ministry of Health Resource Allocation Criteria (the criteria are based on poverty levels, new HIV/AIDS cases, number of women of reproductive age, number of government facilities, number of under-fives, and area). The distribution formula aims to ensure that funds are allocated to individual facilities within each district based on workload. Financing is not linked to results or service objectives. Funds are paid directly into a facility bank account. The health centre management committee (HCMC) has responsibility for deciding on what it is spent and then reporting on its use (Waweru, 2013a).

Opwora et al (2009) used a conceptual framework to evaluate the DFF's impact in two sampled districts. A study strength was the sample size and the combination of interviews with financial data, allowing for generalisability and replicability. 15 facilities were sampled in each district. Quantitative and qualitative data was gathered and structured interviews undertaken with doctors (n=30), patient exit interviews (n=292) and in-depth group

interviews with members of the HCMCs (12 groups, 50 participants). The study focussed on income sources and areas of expenditure and did not consider service objectives or outcomes (only weak and incomplete data from the government health information system was available). Thus, the evaluation was only able to measure process indicators. However, these indicators allowed analysis of the benefits and challenges of this type of financing mechanism. Opwora found that relatively small increases in funding can significantly affect facility performance when the funds are managed well. Transfer of funds directly to the facility was important. Benefits included improved health worker motivation, utilisation and quality of care, improved drug utilisation and management and, anecdotally, a positive impact on funds utilisation. Further, use of DFF funds to renovate buildings created space for specific services such as laboratory and pharmacy and provided more comfortable working conditions for staff and waiting bays for patients. Overall, the environment was felt to have become safer and more attractive for both clients and staff. Problems offsetting these benefits were identified, such as, possible corruption and funds misuse. Training was reportedly inadequate, and no DFF guidelines were available, leading to confusion. This study demonstrates the benefit of flexible financing but indicates the need to include management of these mechanisms in the scope of this research into the CEONC fund as this may impact its utilisation.

The Waweru study (2013b), in its interim review of the HSSF (only available in grey literature), found that it was well received and had a positive impact on facility management and support staff, patient referrals, health worker motivation, and utilisation and quality of care. Challenges were identified, specifically around management and monitoring of funding with little documentation on HSSF available at facility level. The study included an unsystematic review of policy documents, administrative reports, and studies related to HSSF and drew on secondary data from key informant interviews (n=8) from a previous study and further supplemented this with additional national level key informant interviews (n=5). This study was predominantly a secondary analysis of previous research. It had deficiencies including an unsystematic approach to reviewing previous studies under an unclear conceptual framework. Whilst this study has significant limitations it does indicate, as the Opwora study above, that research on management and monitoring of funding mechanisms is an important consideration for this study into the CEONC fund to understand not only how it is perceived, but also how it is implemented.

The Indian Government launched the National Rural Health Mission (NRHM) in 2005 to provide accessible, affordable and accountable primary health care in rural areas. Eighteen “focus” states were selected (Prasad et al, 2012). The government developed a general grant mechanism designed to pay for urgent but discrete expenses covering infrastructure maintenance and provision of services at district, municipality and village level. Funds were allocated on a lump sum basis depending on the municipal level, i.e. district, block, village. Management of these funds would be through local District Health Societies. The Prasad study noted that there was wide variation in fund utilisation.

A Child in Need Institute (CINI 2010) study into the application of the fund in a state with poor utilisation (Jharkand) found there were significant delays (3 to 9 months and sometimes into the following financial year) in the release of funds from the district to the sub-district level. These intermittent funding flows impacted utilisation as health facility staff did not know when funding might arrive and were unwilling to make financial commitments in its absence. It also showed a low awareness amongst fund managers, users and supervisors on the availability and purpose of the funds. This lack of awareness resulted in a rigidity in practice of fund utilisation (*ibid*; Prasad et al, 2012). CINI sampled 4 performing and 4 non-performing districts based on fund utilisation. Data was collected using a knowledge, attitude, practice framework with structured interviews of officials (n=126) and semi-structured discussions with focus groups of voluntary health workers and village health committee members (n=44). A study strength was that they used several data points to ensure its internal validity, and both quantitative and qualitative data. Findings were validated by comparing with a well performing state (Tamil Nadu). Whilst predominantly a qualitative study focused on a specific context, the proximal similarity to other poor states in India and, indeed, to Nepal through people and other social contexts does allow for some level of generalisability (Trochim, 2005). This study identifies the need for this study into the CEONC fund to triangulate local data with the central data and the central level’s implementation of a funding mechanism to effectively consider the influence of the broader health system, not just local structures. Delays in funding flows can effect the confidence of facility level staff to commit funds when they are unsure when, or even if, these funds will be reimbursed.

In Nigeria, the Basic Health Care Provision Fund (BHCPF) was introduced in 2014 to extend Primary Health Care (PHC) to all Nigerians by substantially increasing the level of financial

resources to PHC services. Half of the Fund aims to provide a basic package of services in PHC facilities through the National Health Insurance Scheme (NHIS); 45% is for essential drugs, maintaining PHC facilities, equipment and transportation, and strengthening HR capacity; and the final 5% is for responding to health emergencies and epidemics (Uzochukwu et al, 2018).

In their study of accountability mechanisms for the BHCPF, Uzochukwu et al suggest that funding goals cannot be achieved unless certain conditions are met. These included a written, well communicated implementation guideline; sustained political commitment, particularly in relation to release of funds for health activities, (long delays can be a major problem in planning activities); clarity on the roles of the implementing actors; awareness and education of providers; and high quality data (financial and service provision) that allows for planning and decision making. Whilst the study was limited in its generalisability due to the various contextual factors of the BHCPF, these conditions noted by Uzochukwu et al have relevance for the CEONC fund and for Nepal and indicate that these conditions should be considered as part of this research, triangulating data from central and local actors.

From a facility funding perspective, parallels can also be drawn with the education sector. The education sector has similarities to health, as the benefits accrue at the individual level (e.g., skill development and access to resources); the community level (e.g., the health-related characteristics of the environments in which people live); and the larger social/cultural context (e.g. social policies, residential segregation, and unequal access to educational resources) (Zimmerman et al, 2015). There are also similarities between financing schools and health facilities. Both can be treated as individual cost centres, within a broader government financing system and can be funded from taxation, personal contributions (user fees), donations and other sources.

One relevant financing mechanism is the Direct Support to Schools (DSS) scheme established in Kenya, Uganda, Tanzania and Mozambique based on a block grant mechanism (Ayako, 2006). This mechanism was established to meet the revenue shortfalls experienced by schools after the introduction of free primary education. The grant was payable to all public schools to fund teaching, instructional materials and curriculum activities. Distribution was principally by formula based on school enrolment statistics. Another criterion occasionally used in the

grant allocation process included basic conditions in the school e.g. degree of degradation of school infrastructure.

The Ayako study (grey literature) reviewed the experience and identified lessons from the application of the scheme covering its design, implementation strategy and impact on access to education and teaching and learning environment. The methodology included a desk review of relevant materials and in-depth interviews with education sector officials. The study showed that the mechanism successfully increased school enrolment through increased recruitment of teachers and maintenance and improvements of the school facilities based on school priorities. The study also identified problems that have relevance for this study in Nepal, i.e. political interference; weak organisation and control; mismanagement of funds; general lack of management skills by many principals and their staff, especially in expenditure and revenue control and budget formulation; delays in acquisition of inputs and a shortage of trained teachers. However, in reviewing the study against the CASP checklist (CASP, 2018) there was a lack of information on the research design to assess whether it was appropriate to address the aims of the research and how the findings were analysed. Consequently, the findings are utilised cautiously.

In 2011, Devkota et al undertook an assessment of facility readiness to provide CEONC services. This was not a specific review of the effectiveness of the CEONC fund, but the study does reference the fund and is therefore a critical piece in shaping this research. The evaluation covered 18 district hospitals and is only available in the grey literature. It reviewed CEONC services in the preceding two years to establish if there was continuous availability and assessed if, on the date of visit, the facility would be able to provide CEONC services. The evaluators interviewed key informants, examined the utilisation of CEONC funding and secondary data collected from maternity and operating theatre service delivery statistics. The evaluation used a health systems framework to analyse the results that identified the components of health services that directly affect maternal and newborn outcomes, and the processes or enabling environment guiding and supporting these services. In 2011, (as now) no facility level norms existed for percentage of births delivered by caesarean. However, the 2011 DHS calculated the national rate for caesareans as 4.6% (MOHP et al, 2012). The Devkota evaluation anticipated that within a facility dealing with complicated cases the percentage of

deliveries by caesarean would be at least 5%. However, within the 18 district hospitals studied the average percentage was only 0.4% of births (Devkota et al, 2011). The evaluation also identified that immediate service availability was low, mainly due to no provision of caesarean services 24/7 and key systems bottlenecks including lack of appropriately trained staff, poor equipment and supplies and poor infrastructure. Whilst the CEONC fund was meant to address these bottlenecks the evaluation identified inconsistent uptake of the fund (although accurate financial information was limited). The was not an academic study and has not been peer reviewed. It did not attempt to systematically review the international literature to understand the phenomena observed. A major drawback was the lack of comparison between study sites and no triangulation of data from the central level. This limited the internal validity and generalisability of the evaluation. Despite these limitations, this evaluation showed how the CEONC programme was working in 2011 and provides an important basis for this study as it identified, although it did not explore in depth, the potential limitations of the CEONC fund as a mechanism to increase availability of CEONC services. The Devkota evaluation pointed towards a variation in leadership approaches at the facility level as one potential reason for poor availability of services although it did not attempt to unpick this further in the context of the broader health systems framework. It therefore recognised that the fund was not being utilised effectively across all facilities, but does not adequately explain, why this was observed, nor what works for who under which circumstances. This provides a gap that this research seeks to fill.

These studies help inform the case for this research. They indicate that additional financing if flexibly applied can have positive impact on the provision of services, maintain security of supplies and improve infrastructure. However, the conditions on the availability of such funds are material as is the managerial capacity to utilise such funds effectively and these need to be effectively explored and understood. There also may be little relationship between financial inputs and service outputs. These studies also demonstrate that bureaucratic processes can create their own bottlenecks and other factors affect performance such as corruption, political interference, misuse of funds, poor guidance and lack of training. Performance monitoring should be systematic and effective accountability mechanisms are critical to ensuring objectives are met. A focus simply on financial control fails to recognise that finance is a facilitator, not an end. Clear performance or objective setting and finance

need to be linked to achieve improved services. The supporting financial system also needs to be predictable, consistent, reflect the objectives and the circumstances of the organisation, and not be so bureaucratic as to impede its utilisation. Strong management and leadership are central to the successful utilisation of funding mechanisms, and, these need to be explored in-depth. All of these aspects need to be taken into account in developing research into facility financing mechanisms such as the CEONC fund.

2.4.2 HR management

The WHO defines a health system as one encompassing all activities that have the primary goal of improving health. Within this, the health workforce includes all people engaged in the promotion, protection or improvement of the health of the population (Dal Poz et al, 2007). Using this definition, the health workforce includes medical staff, management and support workers that enable health systems to function. HR is one of the most important health system inputs, with the performance and benefits dependent largely upon the knowledge, skills and motivation of those individuals (both clinical and non-clinical staff) responsible for delivering health services (Kabene et al, 2006). HR must be managed effectively with an appropriate mix maintained between the different types of health workforce (*ibid*). Availability of staffing is a critical factor affecting service coverage which can be affected by geography. For example, poor distribution of staff skewed towards urban areas and away from remote and rural areas has damaging effects (Anand et al, 2007). This problem exists in the availability of CEONC services in Nepal and one CEONC fund aim is to enable district hospitals to fill vacancies in their workforce delivering CEONC services wherever they are located.

A lack of adequately skilled staff was identified by Zimmerman et al (2016) as a key impediment to successful delivery of services, including CEONC. The Nick Simons Institute (NSI) in Nepal developed a programme to address recruitment and retention issues of staff in seven district hospitals. NSI provided a wide range of incentives to suitably experienced doctors. The intervention was successful in both retaining staff (three quarters of the doctors remained with the programme, and of those that left the majority remained working in rural areas but for different organisations). It also increased continuous provision of CEONC services compared to hospitals relying solely on CEONC funding to supplement provision of

CEONC services (*ibid*). This study demonstrates the context in Nepal for delivery of CEONC services and the importance of considering staff motivation in research on the delivery of services. However, since the programme was funded by NSI, they were not constrained by the government systems for hiring and contracting staff, nor by the funding delays experienced by the government because of delayed budget sign off. It is also unclear if the package provided to the NSI supported doctors caused any dissatisfaction or discord between them and the government doctors employed at the same facility but not receiving these benefits. Furthermore, NSI were evaluating their own intervention which could generate analytical bias.

Availability and distribution of health personnel whilst critical is not the only aspect of HR management that affects services. A comprehensive HR management strategy applied at facility level can also impact the provision of services (Kabene et al, 2006). Such a strategy may contain several different elements. For example, a high-quality induction process allows an organisation to welcome new staff, help them settle in and ensure they have the necessary knowledge and support (CIPD, 2016). This helps efficiency, the handover of responsibilities and patient care (Ward, 1998). This can be a distinguishing feature between service quality in performing and non-performing health facilities (Puoane et al, 2008) and therefore important to consider in research on why there is variation between facilities in the provision of CEONC services in Nepal.

A comparative case study of four hospitals in South Africa with a programme to improve the quality of care of severely malnourished children included two performing and two non-performing facilities (*ibid*). Study methods focused on structured observations of ward procedures, on quantitative measures of the hospital environment, and on in-depth staff interviews and focus group discussions related to staff attitudes, teamwork, training, supervision, managerial support and leadership. One drawback of the research was that it was conducted only with clinical personnel and therefore did not include any perspectives on the performance of the facility from either a non-clinical or lay management or a public health perspective. There was no triangulation of the data with central level ministry personnel who might have provided an alternative view on the broader policy environment in which the hospitals were delivering services. Despite these limitations, this was a robust study which addressed the main aspects of validity in the case study methodology (i.e. internal, construct,

external and reliability). Key findings were: whilst all the facilities had access to the same external skills based training on management of malnourished children, the facilities that followed this up with a structured process of induction, continued in-service training and on-going mentoring of a wide range of staff that achieved improved levels of service provision and quality of care, with case-fatality rates reduced by half. This on-going support also built morale of staff members and created a supportive environment for service delivery. It was also posited that using existing staff to train new staff may have contributed to greater absorptive capacity for new knowledge and an increased likelihood that an innovation would be assimilated and sustained. From this study six themes were identified that framed the delivery of services in the facilities. The themes are important as they highlight that guidelines and single point interventions, whether that is training or finance, whilst facilitative, are insufficient in and of themselves to effect sustained changes in practice at facility level that equates to improved provision of services (either in number of services or quality). The themes Pouane et al drew from their study were: induction and in-service training; supervision, support and leadership; teamwork interaction and communication; monitoring or performance and outcomes; attitudes towards the service being provided and patient care; and managerial awareness of progress in service activity and quality, including acknowledgement of their supervisory and leadership responsibilities. Linking all these areas were management and leadership. These themes demonstrate a range of 'softer' interventions that are required that create the enabling environment for the success of other programmes. These themes provide an important framework for this research (see chapter 3) recognising that the CEONC fund, as a single point intervention, may have limited success without parallel interventions that foster leadership and teamwork.

Keugoung et al (2013) in a study on the Cameroon, argued that systematic supervision and monitoring of performance is crucial and central to effective HR management compared to those facilities with a more laissez-faire approach. This also has a critical role in recruitment, retention and motivation as well as being an important factor in ensuring positive organisational outcomes. The Cameroon study used a robust mixed methods multiple case study methodology. Importantly for this study on the CEONC services, it identified that stronger management practices enabled greater control over staff performance and facilitated the use of sanctions to address poor performance. This study also showed that

improved performance occurred where a facility management had managerial authority over staffing compared to those where staff were managed by a central body. Furthermore, if management could only note occurrences of poor performance, rather than actively apply sanctions this adversely affected performance.

Funk et al (2013) examined surgical productivity and quality hospital management practices in three sub-Saharan African hospitals. They sought to apply to a health context in developing countries, a modified framework developed from a measurement tool used to assess management practices at over 700 companies in developed countries by Bloom and Van Reenen (2007). They hypothesised that optimisation of five management domains—goal setting, operations management, talent management, quality monitoring, and financial oversight—would be associated with enhanced surgical productivity. Funk et al selected three hospitals that were purposefully different to obtain exposure to a variety of surgical systems viz. a teaching hospital (affiliated with a university), a district hospital, and a mission hospital. They conducted structured interviews with administrators, clinicians, and technicians. Scores were attributed to each of the hospitals based on the presence of 14 criteria identified as good management practice. This study sought to provide a view on the impact of hospital management practices in low resource settings on the availability of services. This robust study provided a broader view of management approaches than the Puoane et al or Keugoung studies by including not only HR and leadership focussed themes, but also operations management and financial oversight. Given the financial nature of the CEONC fund, this broader view of what constitutes good management practice is valuable for this study. This broader perspective, plus the inclusion of non-clinical staff as key informants facilitated a comprehensive understanding of the health facility operating environment, not just that experienced by health personnel and helps shape the theoretical framework for this study (see Chapter 3). They found that the hospital with the highest management scores—the mission hospital—had the highest surgical volumes per operating room, the highest relative number of employees, surgeons, and surgical nurses, and no waiting list for essential surgery. They surmised that improved hospital management systems, such as lean process, talent management, and financial oversight would be likely to create an environment that fostered productivity and directly affected the ability to provide surgical services at a high level. However, this study focussed only on whether it was possible to assess management practices

in developing country health facilities, and did not seek to identify any causal links between management and performance. The disparate nature of the facilities did not allow for any meaningful comparators between the hospitals as they were operating both within the public health system and privately. Further, the deductive nature of this study meant it focussed entirely on the five domains of management, which were assumed to be relevant to health service delivery, without seeking to identify if this encompassed all the experiences of the facility in the delivery of services and thus presupposed and slanted the results further towards this theory.

A core aspect of the themes identified by Pouane et al (2008) and the 14 criteria of good management practices examined by Funk et al (2013) is good communication practice. Communication is the continual process of providing, sharing and obtaining necessary information. Internal communication is how information is disseminated throughout the organisation flowing up, down and across the entity (CIPD, 2016). It enables personnel to receive a clear message from senior management that responsibilities must be taken seriously (*ibid*). Within the health sector, the fostering of positive communications and relationships were identified as critical success factors in well performing district hospitals in South Africa as well as a significant strategy to revive an ailing hospital in Ghana (Couper et al, 2005; Marchal et al, 2010a). McKee et al (2000) drawing on a major study that was being undertaken by the European Observatory on Health Care Systems noted that in intensive care units, the best predictors of better patient outcomes are organisational factors such as a patient-centred culture, strong medical and nursing leadership, effective collaboration, and an open approach to problem solving. However, what is not covered in McKee's commentary on the research, but may be critical is the willingness of leadership to recognise these organisational factors. It will be impossible to create positive communications and relationships if there is no leader who wants to operate in this way.

For Nepal, these research studies highlight key factors in HR management that are crucial to support the effective delivery of services, but which may be overlooked. Zimmerman and other sources identified that the availability of health service personnel is a crucial and undeniable criterion in the provision of services. However, to enable those personnel to function a comprehensive HR strategy is required as the evidence identified above indicates. An effective HR policy may also facilitate commitment and a unified approach to problem

solving. Communication is the basis for teamwork and positive relationships. It can facilitate the ownership of a shared vision of goals across a broad range of actors, both management and healthcare providers. These are critical factors that remain unexplored in the Nepal context but are critical for the delivery of CEONC services.

2.4.3 Management, leadership and relations with local communities

Effective management is a pivotal factor in the successful delivery of a wide variety of health services (Couper et al 2005; Puoane et al 2008; Marchal et al 2010a; Funk et al 2013; Keugoung et al 2013). However, management is a broad term and those aspects influencing performance should be identified. From this literature review, several management practices impacting on health facilities' performance were identified. Leadership and collaborative goal setting in public and private organisations has been strongly associated with increased productivity and outcomes (Bloom et al, 2010). Within the private sector, engaged leadership has had a positive impact on motivation, commitment, absenteeism, staff turn-over and organisational performance (*ibid*; Bloom et al, 2013). However, only a limited number of studies have considered this in health sector reviews in LMICs. Relevant studies are discussed below.

Couper et al (2005) undertook a cross-sectional exploratory study in South Africa utilising in-depth interviews with managers (n=21) at five well performing district hospitals. The aim was to identify what assists a rural hospital to function well. This included the hospital's ability to set objectives, power to take decisions and the approach to leadership and collaborative goal setting as a supportive mechanism for implementing health policies. The study identified three major themes of successful management:

- Firstly, teams working together for a purpose, including good communications, collaborative teamwork and unity.
- Secondly, a work culture that provided an ethos for staff to be proactive and problem solve.
- Finally, a strong and active relationship between the health facility and the community.

The study though focussed purely on well performing facilities and this consequently restricts the generalisability of the study. However, despite this, the study does indicate, for the purposes of this study on CEONC services in Nepal, that a leadership that facilitates openness, risk taking and reflection necessary for learning, and communicates a compelling vision for the organisation creates the environment for establishing strong teams and greater accountability to the community.

Consistent with the findings of Couper, Marchal et al (2010a) identified the development of a common facility vision as a key mechanism to establish commitment, motivation and dedication of staff and ultimately improvements in performance. The Marchal study involved a series of longitudinal case studies in Ghana and Tanzania examining the links between management and hospital performance. The Ghana case study focused on an ailing urban district hospital which was selected because it was an interesting positive deviant case, where its management team succeeded in improving the performance over a relatively short period. The study employed a realist evaluation methodology and utilised middle-range theory to form the initial hypothesis based on the effect of high commitment management on hospital performance. The mid-range theory included elements of leadership, creation of a shared vision, choice of management practices, mechanisms of reciprocity and outcomes at levels of HR management and hospital performance. The study found, which is useful for this study on CEONC services in Nepal, the management team demonstrated key features of the theory combining a crisis management plan with the development of a long-term strategy. Inclusion, participation, involvement and empowerment were the main attributes of management intervention. These created a shared vision of what the hospital should become and what good leadership should be. They mobilised and motivated the workforce by involving staff in both the diagnosis and search for solutions and concurrently, strengthened the management structures. The authors concluded that this combination created a positive organisational climate and the perception of organisational support. This resulted in better hospital performance including an increase in patient volumes (out-patients, hospitalisations and maternity) and revenues. Whilst this study attempted to overcome the limitations inherent in a single case study method through the application of a mid-range theory, challenges remained as without either effective local comparisons or an analysis of the relationship with

central ministries and national policies, it is difficult to fully establish the causal relationship between the improvements in performance indicators and sound leadership.

More recently, Mathole et al (2018) undertook a mixed methods multiple case study, selecting two South African district hospitals operating in similar contexts but delivering different results in maternal and perinatal health outcomes. They identified important differences in the leadership approaches between performing and non-performing facilities which are relevant for this study on CEONC services in Nepal, that impacted resource management, staff morale, staff skills and accountability (to staff, communities and clients). The performing facility had a strong emphasis on supportive supervision and performance management, nurturing relationships and training. They also valued and used data to understand and monitor programme performance which facilitated accountability and resource utilisation. Both facilities were affected adversely by a central government culture unsympathetic to the needs of lower level government structures and their facilities. This study, whilst limited by a small sample (as with many case studies) does promote recognition of the significance of management and leadership.

In Ghana, Aberese-Ako et al (2018) undertook a robust ethnographic study to understand how and why health system contextual factors affect leadership style and responses of hospital managers to frontline health workers and clients' needs and the effects on frontline workers' motivation to perform assigned tasks. Through participant observation, conversations (n=134) and in-depth interviews (n=52) with frontline health workers and managers they investigated managers' decision making processes, leadership practices, administrative processes, communication and interactions between management and frontline health workers. They identified that different leadership styles affected health worker's motivation with transformational leadership styles (as opposed to transactional or laissez-faire) leading to greater engagement by health workers in achieving the hospital's vision for quality care and improving a hospital's reputation. However, the ability of managers to demonstrate transformational leadership was limited by contextual factors which are also relevant for Nepal, such as their power over HR management processes or erratic or unreliable sources of funding. These limitations drove laissez-faire styles of management which adversely affected frontline worker motivation. This suggests that power to influence critical resources including the workforce mix, infrastructure development, drugs, medical

supplies and equipment is an important factor affecting the style of leadership that managers can employ. Therefore, the scope of managerial authority should be an important factor in health organisational policy.

London et al (2013) in their examination of increasing autonomy of Vietnamese health facilities showed that enterprising leadership encouraged more independent decision making by hospital staff including over HR management. This included training, hiring contract staff and internal reallocation of staff to meet changing needs. A significant positive correlation also existed between autonomy and increased revenue. However, conversely to Aberese-Ako, London et al did not find that increased autonomy generated improved quality of care. Their data suggested the opposite with average lengths of stay and referral rates increasing in more autonomous facilities. There was also a concern that increased independence resulted in abuse of the system e.g. increased use of diagnostic equipment to receive financial incentives. London et al employed a cross-section design with an imitated control intervention. However, generalisability was affected by a small sample size and non-random sampling. Further, the paper makes no attempt to analyse the results against the literature and therefore does not engage with the global discourse on leadership or autonomy. What can be gleaned from the study, which is useful for this research in Nepal, however, is that autonomy doesn't automatically lead to improved quality of care. Moves towards autonomy need to ensure appropriate statistical measurement of service quality and governance to prevent abuse of the system as well as supporting the development of a leadership that has a positive effect on organisational outcomes.

That community participation is a key factor in successful health promotion initiatives has long been acknowledged internationally (WHO, 2001). To ensure positive health outcomes, a health facility needs to establish relationships with the community it serves and to demonstrate it is responding to local specific needs (Couper et al, 2005). This is not always achievable as some medical professionals may oppose changes that threaten their interests (McKee et al, 2000). However, Couper identified that a sense of accountability and responsibility to the community are factors in establishing the successful delivery of positive outcomes. Dhakal et al (2009) in their qualitative study in one district on decentralisation in Nepal identified a key factor impacting on delivery of health services was that only about 50% of the local community groups involved in health (health facility management committees -

HFMCs), in the study district, were active. These were dominated by males with female members feeling they were there purely to make up the quota and unable to engage in designing services that were primarily meant to meet female needs such as maternal health care. This lack of engagement contributed to stagnation in improvements in equity and access to essential healthcare services for women of all ethnic groups. This highlighted the importance of the relationship between the organisation, and the community. Primary data were collected using in-depth interviews with key informants (n=37), focus group discussions (n=7), observation, analysis of raw data and document analysis. Secondary data were collected from the literature and health facilities records. This study benefited from triangulating data from both local and central level stakeholders. However, the district selected has different demographic and geographical characteristics from much of the rest of Nepal which reduces the study's generalisability.

Consistent with Dhakal's findings, Gurung et al (2013) noted that where there are stronger HFMCs (i.e. previously trained, better informed and skilled) with more active participation of poorer castes and women, this has seen positive results in service utilisation and better-quality outcome indicators over time. Gurung, through the USAID funded Nepal Family Health Program II, implemented a programme to empower and build the capacity of the HFMCs. The programme resulted in increases in the ability of the HFMCs to represent the poor and marginalised (lower castes and tribes); improved ability to raise funding to support facilities and improvement in the proportion of health facilities that were open with staff able to provide services. The study did not address those bottlenecks which adversely affect the ability of the HFMCs to operate, such as gaps in central level funding. Neither did it identify the overall gender imbalance of the HFMCs and the relative impact this might have had on service provision.

In Kenya, Waweru et al (2013) undertook a study based on a nationally representative sample, to assess how prepared HFMCs were to undertake an expanded role in overseeing funds dispersed through the HSSF (section 2.4). They collected data through a sample of public health centres and dispensaries in 24 districts. Data collection included surveys with doctors (n=248), HCMC members (n=464) and facility users (n=698), and record reviews. This data was supplemented by semi-structured interviews with district health managers. This was a robust study with a nationally representative sample. It identified, amongst other findings,

that greater community involvement in holding the facilities and HCMCs to account was required.

Despite the limitations of both Couper, Gurung and Marchal's studies they do provide some evidence that supporting the development of leadership, participative decision-making and open communication internally and externally with the local community, can lead to an improvement in staff morale, reduction in absenteeism, a sense of ownership, and improvements in equipment, infrastructure and revenue generation. This indicates that whilst hospital performance is often largely attributed to resource availability issues, such as finance, human resources, equipment, drugs and supplies; there also should be a focus on leadership and management (values, trust, power, interrelationships, entrepreneurship and others) to drive improved outcomes (London, 2013; Mathole et al, 2018). Further, Dhakal (2009) and Gurung (2013) demonstrate that in Nepal the presence or absence of an engaged HFMC, that allows active participation of women and poorer castes, can affect both the uptake and delivery of services. HFMCs need training and support, to effectively undertake their role. Further, as noted in Dhakal's study, an absence of an appropriate HR policy at national and district level created a critical bottleneck preventing a coherent and comprehensive HR strategy to be applied at facility level.

2.5 Gaps in the evidence

This study will fill a specific gap in the current body of evidence as to date there has only been one prior study that has incorporated the CEONC fund as part of its scope i.e. the Devkota et al service evaluation (2011). Whilst a broadly robust evaluation, it was not an academic study and was without the accompanying benefit of the creation of empirical evidence and comparison to the international literature. Overall, within the literature, particularly with regards to analysis of financing mechanisms by government there is a limited number of academic and peer reviewed studies. Of the eight health and education studies noted in section 2.4 reviewing facility financing mechanisms, only three were peer reviewed with five drawn from the grey literature. These studies had varying levels of rigour and whilst some

interesting results were highlighted, given their restricted nature, the reliability and generalisability of the results is limited.

Expanding the literature search beyond financing mechanisms into management of health facilities has supported the identification of key features critical for the successful delivery of health services. This includes HR management and training, infrastructure, supplies and equipment and the enabling environment for service delivery, specifically leadership, management and robust financial management processes. The management literature is predominantly academic and has been peer reviewed (13 of 14 studies). However, a key weakness identified in several of the studies was a failure to triangulate data between the central and local levels. Focusing purely at the local facility level neglects the broader operating environment and systemic bottlenecks to which health facilities are subject.

Within Nepal of the 4 peer reviewed studies 1 was from an NGO and whilst peer reviewed journals had an inherent bias towards favourable reporting of results, 1 dealt with management issues, 2 dealt with health policy and decentralisation, and 1 dealt with systems bottlenecks in relation to CEONC service provision. None dealt with management and financing mechanisms and CEONC service provision. No academic study to date has isolated the CEONC fund as a particular intervention or looked at its effectiveness as a mechanism to support the provision of CEONC services within the district hospital setting.

These gaps in the literature stimulated the development of this study and the identification of the research aims and objectives detailed in section 2.8. It complements and adds to the existing literature providing this first comprehensive academic investigation of the CEONC fund and applying learning from the international literature on health facility leadership and management to the delivery of CEONC services in Nepal. The insights gained from this study may be of assistance to Nepal policy makers seeking to improve the provision of CEONC services.

2.6 Research question, aims and objectives

2.6.1 Research question

Why do some district hospitals in Nepal achieve better provision of CEONC services than others?

2.6.2 Aim of the study

The study's aim is to explain the reasons for the disparity in provision of CEONC services and to identify factors that constrain or enhance the availability of CEONC services. The study focuses on the funding, systems and structures that influence the availability of CEONC services. Given the CEONC fund is purely a funding instrument, the study aims to identify whether simply providing additional funding is an effective mechanism for increasing availability of CEONC services in hospitals, or as the literature suggests other factors are important.

2.6.3 Objectives of the study

The objectives of the study are to:

- Identify the factors (funding and other) affecting CEONC service availability at the hospital level.
- Assess the efficiency and effectiveness of the CEONC funding arrangements in securing a better utilisation of the CEONC services at the hospital level.
- Determine factors which enable or inhibit utilisation of the CEONC fund at the central level as a contributor to the delivery of more efficient and effective CEONC services.
- Explore lessons learned and make recommendations for future financing, management and delivery of CEONC services within hospitals in Nepal.

2.7 Summary

This chapter has reviewed the literature which is relevant to addressing the research question. The chapter looks at ideas from other public service funding arrangements and several LMICs. This chapter briefly describes the Nepali arrangements for BEONC and CEONC services and the policy environment. It reviews the literature on the strengths and weaknesses of facility funding mechanisms in both the health and education sectors. This review highlights the significance of management on both the effective utilisation of finance and ultimately on the delivery and availability of services. Financial reform alone will not provide a more effective CEONC service unless accompanied by a management capable of taking advantage of that reform. The chapter therefore explores research on management practices, particularly as they impact on HR within healthcare. Finally, the chapter identifies the gaps in the literature and from that identifies the research question, aim and objectives that frame the research methodology explored in Chapter Three.

Chapter Three: Methodology and Methods

3.1 Introduction

This chapter discusses and describes the philosophical paradigm, methodological framework and the design, developed to answer the research question and achieve the aims and objectives set out in Chapter Two. A comparative multiple case study methodology has been developed which utilises qualitative data and draws on financial data from the study sites. The design used a literature informed process to ensure internal and external reliability and validity. This chapter describes the choice of research sites, sampling method, data collection, fieldwork and analysis and the challenges and adaptations required to the approach given the difficult environmental and political context in Nepal during 2015 when data was collected. It also includes a critical analysis of the guiding theoretical framework which was used to develop the novel hybrid framework used for the study. The final section includes a consideration of the quality control, and ethical issues involved in the research.

3.2 Research design

3.2.1 Research philosophy

This study falls under health policy and systems research (HPSR). HPSR investigates issues such as: how health care is financed, organised, delivered and used; how health policies are prioritised, developed and implemented; and how and why health systems do or do not generate health and wider social goals (Gilson, 2012). *“HPSR encompasses research on the policies, organisations, programmes and people that make up health systems, as well as how the interactions amongst these elements and the broader influences over decision making practices within the health system impact systems performance”* (p.31 *ibid*).

HPSR is multi-disciplinary and embraces a wide range of social and political realities. Research conducted within this paradigm can encompass several different epistemological and ontological positions as it seeks to understand complex causality drawing on comparative analysis to generate conclusions that are relevant in various settings (*ibid*). For the purposes

of this study, the three broad paradigms of positivism, interpretivism and critical realism were considered as the three principal lenses through which the study could be developed.

From a positivist stand point within HPSR, the CEONC fund could be viewed as a specific intervention that could be tested in a quasi-experimental study. A controlled randomised field experiment was considered as an approach to test its efficacy. This would enable the causes and consequences of the implementation of the fund to be measured and identified through empirical research. However, pragmatically, given the CEONC fund exists and is operational the establishment of a controlled experiment was impossible. Further taking a purely positivist position would indicate that the CEONC fund, as an intervention, existed independently of how it is understood and seen by people. Neither would it allow for the potential influences of the multiple actors that operate within the Nepali health system and the impact of different physical or temporal contexts on the fund's efficacy (Hudson et al, 1988).

An interpretivist stand point would acknowledge that the effectiveness of the CEONC fund, as an intervention, arises through interaction among social actors. That it does not exist independently of these actors but is constructed through the way those actors interpret their experience, and that these interpretations change over time (Gilson, 2012). This approach would fit well with this study as would many of the qualitative methods utilised (in depth interviews, observations). However, the nature of interpretivist research is to understand and interpret the meanings in human behaviour rather than to generalise and predict causes and effects (Hudson et al, 1988; Neuman, 2000). Therefore, a purely interpretivist approach would limit the research ability to achieve its purpose of explaining why there is disparity in provision of CEONC services and to identify any causal factors that constrain or enhance their availability in the varying contexts.

A third paradigm of critical realism was also considered. Critical realism is a philosophical reaction to positivist approaches to social science (Bhaskar, 2008). A positivist philosophy sees the world as quantifiable and observable and that scientific methods can be used to study the social world, whereas an interpretive approach places less emphasis upon natural sciences subject/object epistemology. Critical realism describes the interface between these two approaches (Bhaskar, 2008). Critical realism holds that knowledge is not independent of those

that produce it and is subject to change but on the other hand this exists apart from our knowledge and experience of them (Bhaskar, 1998).

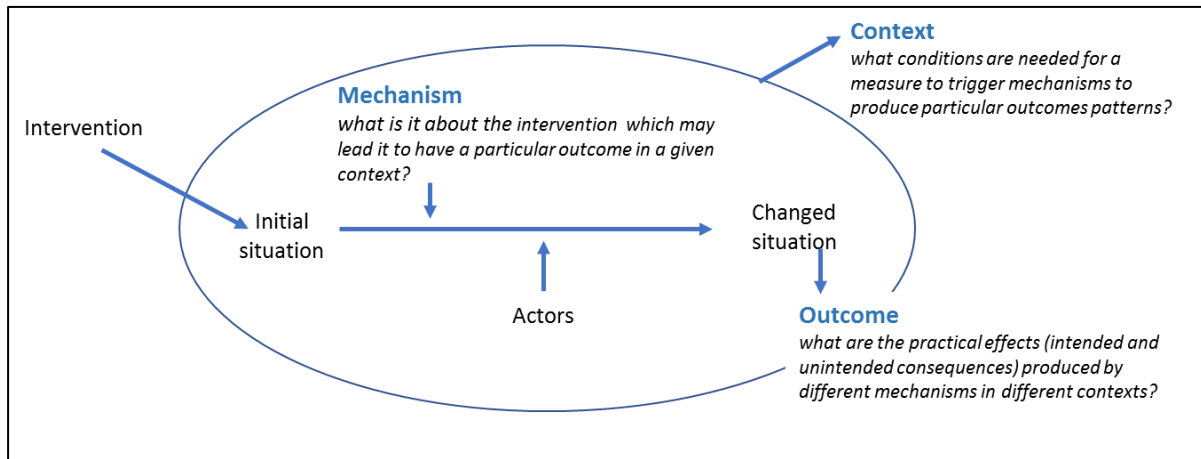
Within the context of this study, this is understood as whilst district hospitals in Nepal operate within a health system that provides resources it also creates limits which affect their capabilities. Managers have some flexibility to respond to local circumstances but that flexibility is constrained by central staff management actions which occur without local consultation. Ontologically, one of the central points in critical realism is the view that reality is constructed from generative mechanisms that produce events. These generative mechanisms are the way things act in the world and how they do this autonomously of humans (Bhaskar 2008).

3.2.2 Critical realism in practice and context/mechanism/outcome configurations

Pawson & Tilley (1997) propose realistic evaluation as a field method to uncover and assess the generative mechanisms within certain situational contexts, thus bringing the philosophy of critical realism to research practice. For a critical realist ontology within an HPSR perspective the dominant question is 'What works for whom in which conditions?' (*ibid*). As such, this approach embraces analytic or theoretical generalisability as well as using causal language to describe the world and understand why things are politically or pragmatically desirable (Gilson, 2012). Whilst this is not a fully-fledged realist evaluation study, it is inspired and informed by the approach. A realist evaluation study utilises a context/mechanism/outcome configuration (CMOC) to identify the contextual conditions that make interventions effective or not. The CMOC identifies: the initial situation; the intervention designed to change that initial situation; the mechanism or underlying social or psychological drivers that 'cause' the reasoning of actors; and the context that may provide alternative explanations of the observed outcomes (Figure 2) (Pawson and Tilly, 1997). In a purist realist evaluation, the CMOC is developed at the start of an intervention and revisited and refined at various points throughout the study, with a final CMOC produced based on the analysis of evidence. From an HPSR perspective, a CMOC allows insights about the interactions between different (sometimes uncoordinated) interventions, communities, central and local implementers and health systems that make programmes more or less

successful. This supports identification of lessons about how programmes produce outcomes and, therefore, inform policy decisions (Adams et al, 2016).

Figure 2: Context/Mechanism/Outcome Configuration



Source: Adapted from Pawson and Tilley (2004) p.6

When the CEONC fund was developed no such CMOC was conceptualised: therefore, for the purposes of this study, a retrospective CMOC was developed. This retrospective CMOC was developed through desk review of relevant government and research documents (that is, the initial guidelines for the CEONC fund, the Nepal Health Sector Plan (I) 2005-2010 and two studies from the grey literature, Suvedi et al, 2009 and Devkota et al, 2011) and through specific questions asked as part of the semi-structured interviews with central level informants who had been involved in the development and execution of the fund (CI1, CI2, CI6). To create a retrospective CMOC, content analysis of these documents was undertaken searching for terms related to the purpose and intended outcome of the fund as an intervention and the specific context for delivery of CEONC services in Nepal during the early phase of development of the CEONC fund i.e. circa 2008. These findings were compared against qualitative data from the interviews to identify the mechanism by which it was anticipated the fund would work, i.e. the drivers that cause the reasoning of actors involved in the delivery of CEONC services. As a result, a CMOC was developed that aimed to describe the implicit assumptions underlying the original design of the CEONC fund as an intervention (in 2008) and the context and mechanism by which it was *intended* to achieve outcomes (Table 4). A key assumption of the CEONC fund design was that there was a single context within which the CEONC fund was intended to operate and a clear pathway was assumed to

exist between the single intervention of additional funding and the outcome of increased CEONC service availability.

Table 4: Intended CMOC for the CEONC fund

Context	Intervention	Mechanism	Outcome
Lack of resources at the district hospital level, in particular human resources, restricts availability of CEONC services	Provision of additional financial resources ring-fenced for supporting CEONC services	Provides resources and motivation for hospitals to prioritise and implement CEONC services	Increased availability and provision of CEONC services

As noted above, a key phase of realist evaluation is revisiting the initial CMOC utilising evidence-based findings. The purpose of this is to identify recommendations that reflect the realities of implementation (Adams et al, 2016). Therefore, following data analysis the retrospective CMOC above was revisited and refined (Chapter Five). This is a novel approach for Nepal and enabled explanations to be developed of why, how and under what conditions CEONC services can become established and therefore facilitates an understanding of the most appropriate solutions to secure countrywide improvements in CEONC policy and practice.

3.2.3 Comparative case study methodology

Miles and Huberman (1994) suggest that for an explanatory study, if there are multisite data sources, qualitative methods can develop powerful general explanations. Further, Easton (2010) notes that the use of causal language to describe the world is a fundamental tenet of critical realism and that it is particularly well suited to case study research stating “It justifies the study of any situation, regardless of the numbers of research units involved, but only if the process involves thoughtful in-depth research with the objective of understanding why things are as they are.” (*ibid*, p.119). Therefore, from a critical realist and an HPSR perspective, a multiple case study methodology was selected as the most suitable to answer the research question. Within the critical realist perspective of the case study approach the case objects are identified to be ontologically ‘real’ i.e. they exist prior to the research act itself (Byrne et al, 2009) but that reality is socially constructed and social phenomena are intrinsically meaningful and therefore it requires an interpretivist epistemology to be able to understand, rather than measure or count, this meaning (Sayer, 2000; Easton, 2010).

Comparative case study analysis is of growing interest among HPSR researchers investigating health systems phenomena (Gilson et al, 2008; Marchal et al 2010b). This is because, health policy and systems are strongly influenced by, and often embedded in, contextual factors that necessarily become part of the focus of inquiry. Additionally, HPSR questions often require study of the complex behaviours and relationships between actors and agencies; and how relationships influence change, including over time. A case study approach benefits HPSR because of its flexibility. It supports exploratory inquiry; it helps generate ideas and concepts for follow-up work: it allows detailed description of particular experiences and enables the investigation of 'how' and 'why' questions: it allows analytic generalisation through a range of personal, organisational and societal factors, through cross-case analysis (Gilson et al, 2011). This provides a pathway between research outcomes and practical application.

Case studies are "an exploration of a 'bounded system' of a case or multiple cases over time through detail, in depth data collection involving multiple sources of information rich in context" (Creswell, 1998, p. 61). They are a useful mechanism in understanding a contemporary phenomenon within its real-world context, particularly when the phenomenon and context are inextricably linked (Bromley, 1986; Yin, 2009; Yin, 2012).

There are challenges in adopting a case study methodology. Historically they have not been seen as involving serious, rigorous inquiry because trust may be lacking in the credibility of the researcher's procedures to protect against biases as well as a perceived inability to generalise case study's findings (Yin, 2012). On balance, however, the strengths of the case studies methodology outweigh the challenges. This study therefore utilises an explanatory multiple case study design (Yin, 2003). The principal reasons for selecting such a methodology are described in Table 5.

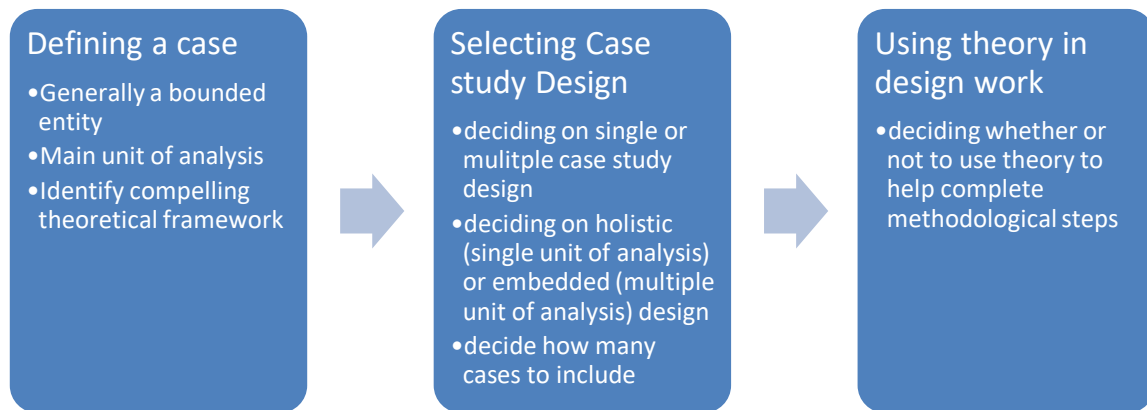
Table 5: Reasons for selecting comparative case study methodology

	What the study is trying to achieve	Why a case study methodology is appropriate
1	This study aimed to develop an in-depth understanding of how and why variations occur in the extent to which districts hospitals provide CEONC services and the significance of the CEONC fund in determining availability.	Case study research is a useful mechanism when answering descriptive or explanatory research questions i.e. the “hows” and “whys” of a phenomenon, particularly within a real-life context. It enables rich and thick data collection and analysis (Woodside et al, 2003; Yin, 2003; Schiele et al, 2010).
2	The intention of this study is to identify and disentangle the complex factors and relationships that have evolved within district hospitals affecting the provision of CEONC services and with the central level management (the MoHP).	Whilst focussed on a small number of hospitals, case studies are a useful mechanism to examine operational links (Easton, 2010; Yin, 1989; Yin, 2003).
3	The boundaries between the utilisation of the fund (i.e. the phenomenon) and how a district hospital reacts (i.e. the context) are unclear and would benefit from detailed analysis.	A case study approach allows analysis of complex systems, considers external conditions and allows for rigorous and informed judgments about the interactions between the parts and the whole (Bromley, 1986, Keen et al, 1995; Yin, 2009, Byrne et al, 2009).
4	This research has practical implications for the government of Nepal, the delivery of CEONC services and CEONC fund management.	Case studies are a methodology ideally suited to creating managerially relevant knowledge. (Gibbert 2008).
5	The research aims to create new knowledge for policy and practice in Nepal	The connection between the case study and empirical reality will allow the production of new knowledge relevant for both theory and practice (Glaser and Strauss, 1967; Schiele et al, 2010).

3.2.4 Designing the case study, reducing bias and ensuring validity

To ensure this study addressed the challenges noted above (3.2.3), two systematic approaches to case study design were drawn on from two widely cited and acknowledged authors, Robert Yin and Kathleen Eisenhardt. Yin (2012) describes a simple three stage process for designing case study research viz: define a case; decide whether to use single or multiple, holistic or embedded units; decide whether to employ a theoretical framework (Figure 3). Yin suggests that *“a case study that starts with some theoretical propositions will be easier to implement than one having no propositions”* (p. 9). Basing the data collection and analysis on a theoretical framework would produce more valid and robust results, recognising that the original perspective might need to be discarded after initial data collection.

Figure 3: Three steps to designing case studies



Adapted from Yin (2012)

To limit bias, Eisenhardt (1989) proposes research should ideally begin with no preconceived theories or hypotheses to test. Her approach permits the development of theory from data rather than attempting to falsify a hypothesis. Eisenhardt's approach to case study methodology has 8 steps designed to ensure validity of the case study methodology (Table 6).

Table 6: Process of building theory from case studies

	Step	Activity
1	Getting started	Defining research question Possibly <i>a priori</i> constructs
2	Selecting cases	Neither theory nor hypotheses Specified population Theoretical, not random, sampling
3	Crafting Instruments and protocols	Multiple data collection methods Qualitative and quantitative data combined Multiple investigators
4	Entering the Field	Overlap data collection and analysis, including field notes Flexible and opportunistic data collection methods
5	Analysing data	Within-case analysis Cross-case pattern search using divergent techniques
6	Shaping hypotheses	Iterative tabulation of evidence for each construct Replication, not sampling, logic across cases Search evidence for "why" behind relationships
7	Enfolding literature	Comparison with conflicting and similar literature
8	Reaching closure	Theoretical saturation when possible

Adapted from Eisenhardt 1989 p.533

Whilst these two approaches are diametrically opposed as one states that the research should begin with a theoretical proposition (Yin) and the other that there should be no such theories to test (Eisenhardt), there are parts of the process in each that are compatible and as a result the design of this research draws on a combination of these two approaches to design the

case study approach. Fundamentally, the foundations are with Yin's pragmatic approach, utilising an initial theoretical framework to help complete essential methodological steps, such as developing the research question, selecting the case, refining the case study design, and defining the relevant data to be collected as well as organising the initial data analysis strategies and generalising the findings from the study. However, additional activities from Eisenhardt's were also seen valuable been used to add further structure to Yin's steps. Those activities that were drawn on from Eisenhardt in this research are bolded in Table 6 above and the combined approach laid out in Table 7.

With the in-depth study of several cases there was the potential for bias to exist, for example, through investigators developing affection, sympathy or, indeed, antipathy towards the objects of investigation (Jupp, 2006; Bryman, 2012). The approach adopted, through the framework, helped to minimise bias (Maxwell, 2005; Bryman, 2012, Hepworth, 2013). Table 7 shows the process by which the case study was designed and the steps taken to reduce bias.

Table 7: Process of designing the case study research

Step	Activity	Reducing Bias
One: Getting started	Following an initial literature review, the research question, aims and objectives were defined (2.8).	Ensuring openness to contrary findings through critical analysis of the conceptual framework.
Two: Defining a "case"	The case object was a district hospital receiving CEONC funds	Systematic district hospital selection in line with the sampling strategy (3.2.5) to ensure no district hospital was deliberately excluded on grounds of bias (Bryman, 2012).
Three: Selecting case study design	A holistic multiple case design was selected to provide greater confidence in the findings.	Multi-case and multiple data collection methods were utilised to enable triangulation of data and reduce risk of chance associations. (Eisenhardt, 1989, Hepworth, 2013). Data was also collected from the central informants to provide an additional layer of interpretation and analysis of district hospital information.
Four: Selecting cases	The specified population for the cases was the 32 district hospitals in Nepal eligible for the CEONC fund in 2015. Cases were selected based on deliberately contrasting factors (3.2.5).	The sampling strategy (3.2.5) was designed to ensure no district hospital was deliberately excluded on grounds of bias (Bryman, 2012).
Five: Deciding whether to use theory to help complete essential methodological steps	From the literature, a theoretical framework was developed (3.4) to refine the research question, structure the data collection tools, develop data analysis strategies, ensure that known and/or suspected factors were considered and to generalise findings.	Ensuring openness to contrary findings through critical analysis of the conceptual framework and cross case analysis to interpret findings (Yin, 2009, Yin, 2003) (Chapter Four).

Step	Activity	Reducing Bias
Six: Crafting instruments and protocols	Multiple data collection methods were selected including both qualitative and quantitative (financial) data (as appropriate) (although due to the limitations of the quantitative data, no quantitative analysis was undertaken). Multiple investigators were utilised. (3.5)	Translated interview transcripts were reviewed by an independent third party to ensure transcription was accurate and avoided translation bias. The principal investigator trained Nepali investigators prior to data collection.
Seven: Entering the Field	Data collection and analysis overlapped and included field notes	A 'diary' was kept to reflect on all aspects of the research and the responses of the researcher (Cousin, 2005; Jupp, 2006; Simons, 2005).
Eight: Analysing Data	Both within case and cross case analysis was used. (Chapter Four)	Identification and analysis of discrepant data and negative cases. Discrepant data was assessed to determine whether conclusions needed to be adapted (Maxwell, 2005; Hepworth, 2013). Cross case analysis helped interpret findings (Yin, 2009, Yin, 2003)
Nine: Shaping Hypotheses	Tabulation of evidence against each theoretical construct (Chapter Four)	Cross case analysis used to investigate divergent results (Yin, 2009, Yin, 2003)
Ten: Enfolding Literature and reaching closure	Comparison with conflicting and similar literature. Conclusions drawn from evidence and theory. (Chapter Five)	Ensuring openness to contrary findings through critical analysis of the conceptual framework and cross case analysis to interpret findings (Yin, 2009, Yin, 2003)

Process based on Eisenhardt, 1989 and Yin, 2012

As noted above key criticisms of case study methodologies exist that must be considered. Principally these are that it lacks controls, that there is inadequate measurement of independent and dependent variables and that subjectivity or arbitrariness may affect data interpretation (Runyan, 1982). The critical question is how to trust the case study conclusions and judge the extent to which the findings address the concepts with which the research and cases are concerned. This is achieved through ensuring the validity of the data i.e. the appropriateness of the tools and processes used to collect the data. Specifically, this refers to the internal validity, construct validity, external validity and reliability (Gibbert, 2006, Mills et al, 2010). Table 8 summarises the different types of validity and how they were addressed in this study.

Table 8: Achieving validity in the case study research based on Mills et al (2010)

Internal Validity: Using different methodological tools to “triangulate” the data	The research framework was explicitly derived from literature utilising the theoretical framework to develop an explicit description of causal relationships between variables and outcomes; utilisation of a pattern matching analysis i.e. comparing theory with actual events and theory triangulation, using these as research framework and mechanism to interpret findings (Gibbert, 2006, Denzin et al, 1994; Eisenhardt, 1989; Yin, 2003, Trochim, 1989).
Construct validity: Selecting the most appropriate measurement tool for the concepts being studied. Ensuring the data collection tools really measure what needs to be assessed	Peers in Nepal reviewed transcripts of interviews. Participants/ key informants were not able to participate in this review due to the translation into English. Translation was checked and back checked. A clear chain of evidence was maintained between the field researchers, the translators and transcribers and the author as principal investigator (Yin, 2009). Data analysis started immediately after the first case study field work was completed and continued during subsequent case studies.
External validity or generalisability beyond the circumstances of the case to more general situations.	This was achieved by undertaking multiple case studies; whilst statistical generalisation is not possible, the intention is for there to be analytical generalisation i.e. generalisation from empirical observation to theory (Gibbert, 2006). The number of case studies selected complied with Eisenhardt’s suggestion that cross-case analysis involving 4 to 10 case studies are a good basis for analytical generalisation. In addition, the breadth of participation from clinical, public health, management and central ministry level and the number of key informants contributes towards generalisability.
Reliability: The extent to which the results can be repeated in ways that yield the same results.	This was derived through a guide that was developed for the people collecting the data. This could also be used for replication by other researchers if required. A case study database was developed that includes the case study notes, the case study documents, tabular materials (e.g. quantitative data such as financial data) and the narratives collected during the study. This is hosted within NHSSP for confidentiality purposes, but organised in such a way as to facilitate retrieval for later investigators if suitable permission is sought (Gibbert, 2006; Yin, 2009).

To confirm results, a preliminary report on findings was produced and circulated to critical peers, colleagues and key participants in the government of Nepal. The purpose of this was to enable them to offer alternative explanations, suggestions for data collection or flaws in logic or methods (Yin, 2009; Hepworth, 2013). This report was formalised into a consultancy report for the MoHP in January 2016.

3.2.5 Sampling methodology

Pettigrew (1988) notes that, given the limited number of cases that can be studied, it is neither necessary nor preferable to randomly select cases. As such, it makes sense to choose cases that represent extreme situations and polar types in which the process of interest is clearly apparent and from which emergent theory can be replicated or extended (*ibid*). This

study selected multiple case studies to enable systematic comparison, increase validity (Yin, 2003; Schofield, 2006), and improve generalisability (Leonard-Barton, 1990; Lincoln et al, 2006). The study recognises that the cases (i.e. the district hospitals) are complex systems and do not operate within a vacuum. There are multiple interactions not only within the district hospital (e.g. between clinical departments, such as obstetric and surgical and between clinical and administrative departments) but also externally, between the district hospital and the central department of health services (DoHS) in Kathmandu (Byrne et al, 2009).

To identify results that would be widely applicable, the study selected four diverse district hospitals from the total population receiving CEONC funds at the time of sampling. The four sites were identified and selected using an extreme case selection framework (Figure 4).

Figure 4: Sampling framework

		Allocation of CEONC Fund FY 2013/14	
		low (<2M NPR p.a.)	high (>2M NPR p.a.)
Proportion of caesareans against normal births	Below 5%	Case Study A	Case Study B
	Above 5%	Case Study C	Case Study D

As shown in Figure 4, two broad delineators were used to segregate the total universe of district hospitals in receipt of CEONC funding: budget allocation of the fund and percentage of caesareans against total deliveries. A high budget allocation was identified as greater than NPR 2 million per annum. This funding amount is chosen in the absence of other data on financial allocations to the facilities and does not necessarily indicate an increased spend per bed or head. Service data based on numbers of caesareans was used as a proxy indicator for availability of CEONC services. Caesareans were used as a proxy for two reasons. Firstly, the activity is specific only to comprehensive rather than basic emergency obstetric care and is only performed at hospitals with surgical facilities. Secondly, caesareans are one of the

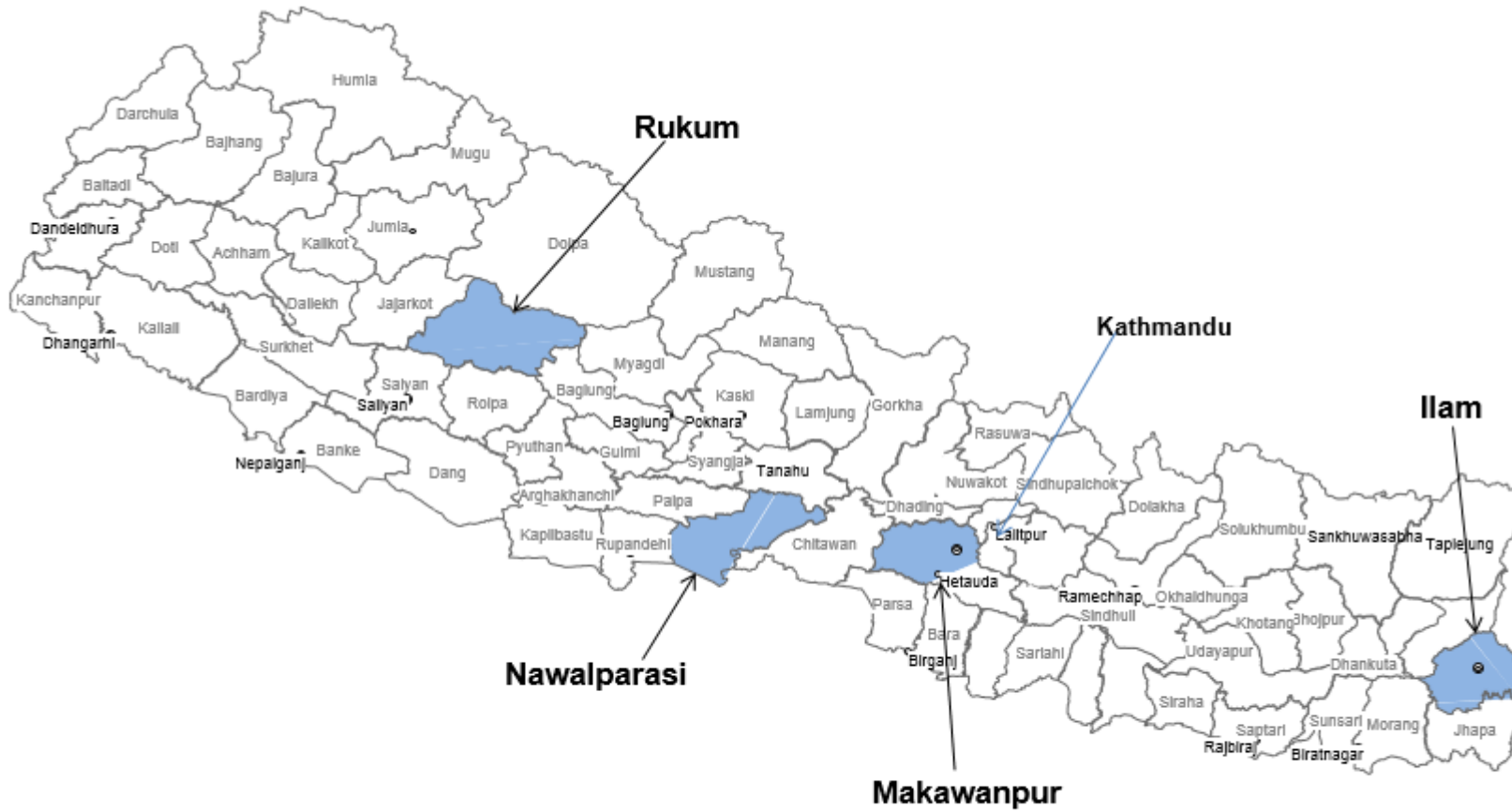
commonest obstetric procedures where complications exist, and reporting is relatively reliable (WHO, 2009). The Demographic Health Survey available at the time of data collection calculated the Nepal national rate for caesareans as 4.6% (MOHP et al, 2012). Using the WHO recommendations (Chapter One) an assumption was made that the percentage of deliveries by caesarean would be at least 5% this was used as the delineator between high and low caesarean rates.

Once the districts were disaggregated by fund allocation and percentage of caesareans, additional factors were considered to select the districts. One factor was geographical spread, so that as many regions and ecological zones (i.e. mountain, hill, terai [plains]) as possible were represented. This resulted in Eastern, Central, Western and Mid-Western regions and hill and terai ecological zones included in the sample (Rukum is designated Mountain and Hill). Geographical regions are important in Nepal as they are both a key equity marker and a parameter used by governments for planning, budgeting and delivery of health services (Sato et al, 2015). A geographical spread was also useful because the strategies to scale up services in the terai regions are different from those for the hills and remote districts (*ibid*). Once these factors had been identified, selection was then based on accessibility, affected by the earthquake recovery and civil unrest that the country experienced during April – December 2015. Researchers (section 3.5) could visit all regions except for the far-west due to the civil unrest. One earthquake affected district was included in the sample. Table 9 and Figure 5 show the 4 districts selected for this study (Appendix 5 has the full sample universe and a map with the study locations in the new federalised structure). Since the field research was undertaken, the process of federalism has defined new provinces in Nepal. The table, therefore, also indicates the provinces the study districts are now in.

Table 9: Selected districts

Hospital and district	Earthquake affected	Region	Province	Ecological Zone	2013-14 CEONC Fund Allocation NPR (000)	No. of caesareans	Total deliveries	% of deliveries by caesarean
Low Caesarean rate; Low fund								
Prithiv Chandra Hospital, Nawalparasi	No	Western	5	terai	900	23	979	2.35%
Low Caesarean rate; High fund								
District Hospital, Rukum	No	Mid-Western	Half 5, half 6	Hill / mountain	4000	15	449	3.34%
High Caesarean rate; Low fund								
Makwanpur District Hospital	Yes	Central	3	hill	1200	132	1455	9.07%
High Caesarean rate; Low fund								
District Hospital, Ilam	No	Eastern	1	hill	2900	167	833	20.05%

Figure 5: Map of Nepal



Nepal: Districts

3.4 Development of the theoretical framework

As an explanatory case study approach looking at causal relationships, two theoretical approaches were considered to frame the research. Firstly, factor theory and, secondly, explanatory theories (Yin, 2003, Jupp, 2006).

Factor theory was a possible theoretical framework as it would comprise assembling a list of independent variables (e.g. availability of human resources, physical location, strength of management experience and skills) and determining those that are most highly correlated with the dependent variable (i.e. availability of CEONC services) (Yin, 2003; Keen et al, 1995). However, Yin (2003) and Simons (2009) identified that utilising factor theories may reduce validity as the limited number of data points available within the case studies might make it impossible to rank the factors in order of importance or develop a robust causal understanding (Yin, 2003, Simons, 2009). Therefore, utilising explanatory theories was considered as an alternative.

Yin (2003) notes that, in comparison to factor theories, explanatory theories are more suitable for causal case studies. However, the challenge for this study was the lack of a single viable explanatory theory that adequately addressed management, financial and service delivery elements (*ibid*; Byrne et al, 2009).

The literature review indicated that strengthening district health systems may benefit from a focus on developing well-thought through and well-coordinated policies and management procedures rather than relying solely on providing additional financial resources (Prashant et al, 2014). Consequently, a linkage should be developed between the specific funding intervention (i.e. the CEONC fund) and the performance of a hospital in delivering CEONC services. Two frameworks were identified that could provide the building blocks of an appropriate contextual theoretical model for this study. These were the human resource management framework developed by Puoane et al (2008) and the five management domains identified by Funk et al (2013). These two frameworks were selected as they were developed from studies that sought to identify how different facets of health facility management impacted on service delivery.

3.4.1 Pouane et al theoretical framework

The Pouane et al (2008) study (summarised in Chapter Two) reviewed why some facilities in South Africa achieve better care of severely malnourished children than others. This research explored the reasons for a disparity in outcome (fatality of children) and identified factors that constrain or enhance the quality of care. The study adopted a grounded theory approach to data collection in which each strand of information lead to further investigation of behaviour and activities with data collection continuing until saturation was reached. Interviewees were clinical staff.

As noted in Chapter Two, six themes could be identified from the Pouane study:

- i.) Induction and in-service training;
- ii.) Supervision, support and leadership;
- iii.) Teamwork interaction and communication;
- iv.) Monitoring of performance and outcomes;
- v.) Attitudes towards the service being provided and patient care;
- vi.) Managerial awareness of progress in service activity and quality, including acknowledgement of their supervisory and leadership responsibilities.

Together these six themes represent good managerial practice. They are categorised and disaggregated further in Table 10.

Table 10: Pouane et al theoretical framework

Case-load, staffing and training/qualifications	Availability of supplies	In-service training, supervision and teamwork	Managerial style, monitoring and leadership
Staffing levels Training / qualifications of staff	Availability of supplies	Induction of new doctors In-service training Supervision Teamwork and staff attitudes	Awareness of progress in service activity and quality Interaction and communication with staff Monitoring of performance and outcomes Perception of their role (supervisory and leadership responsibilities) Leadership and support

Adapted from Pouane et al (2008)

This Puoane research has relevance to this study as a similar concept is being explored i.e. why hospitals receiving the same intervention (additional funding) perform differently in their service delivery. Puoane used their results to infer a causal relationship between activities under the six themes and the ability of the hospitals to deliver high quality and effective services. The linking point between these six themes and the delivered quality of care was ‘management’. These six themes provided a lens through which to view district hospitals in Nepal to help identify if a causal relationship existed between management practice and service provision. No literature on the quality of management and service delivery in Nepal expressed by these six themes exists. They therefore provide a novel approach for this research.

In Chapter Two comments were made on the limitations of Puoane et al’s research. This Nepal study compensated for those limitations by consulting with a wider group of people. Further, whilst the Puoane study nominally took an inductive grounded theory approach to data collection, in practice the results remained within the confines of the six themes used to guide the data collection, no emergent themes were detailed. It was also unclear what basis the six themes had in theory or the literature. Therefore, whilst the Puoane framework could be applied it needed adjustment to ensure it was better grounded in theory and was sufficiently broad to encompass views on the health system beyond those experienced just by clinical staff.

3.4.2 Funk et al theoretical framework

An alternative study by Funk et al (2013) contrasted with Puoane’s (2008) inductive study as it was strongly deductive and set out to disprove a hypothesis. Funk’s study (see Chapter Two) examined specific hospital management practices in three sub-Saharan African hospitals looking at surgical productivity and quality. Contrary to Puoane’s study, Funk’s study was based on theory, drawing from management literature and research from the business community. Funk hypothesised that optimisation of five management domains—goal setting, operations management, talent management, quality monitoring, and financial oversight—would be associated with enhanced surgical productivity. Each of these domains were further disaggregated into specific management practices (Table 11).

Table 11: Funk et al's management domains

Domain 1	Domain 2	Domain 3	Domain 4	Domain 5
Goal setting	Operations management (standardized protocols, reliable supply/equipment procurement process)	Talent management (recruitment, promotion, termination)	Quality improvement monitoring (adherence to protocols, progress toward goals, adverse events)	Financial oversight
Goals set internally	Standardized protocols in use and consistent with hospital goals Essential surgical supplies and equipment obtained through a reliable, competitive procurement process	Employees actively recruited	Adherence to standardized protocols monitored	Hospital finances examined by external entity
Goals publicized and widely supported	Staffing reflects hospital needs and employee skill sets	Promotions and rewards based on performance Underperforming employees reassigned or terminated	Progress toward goals tracked and reviewed Surgical and executive leadership held accountable for progress toward goals Adverse events reported and reviewed (e.g., departmental meetings)	Surgical and executive leadership responsible for financial well-being

Adapted from Funk et al (2013)

Funk's study has relevance to this research as it addressed the impact of hospital management practices in low resource settings on service availability and used a broader set of management indicators than Puoane. By including not only human resource and leadership focussed themes, but also operations management and financial oversight, plus the inclusion of non-clinical staff Funk allowed a more comprehensive understanding of the operational environment of a health facility. However, Funk's study did not identify causal links between management and performance. The deductive nature of this study meant it focussed entirely on the five domains of management, which were assumed to be relevant to health service delivery, without seeking to identify if this encompassed all the factors affecting the delivery of services. The consequence is that this presupposes and slants the results towards this theory.

3.4.3 Combining and adapting the theoretical frameworks

To develop a framework appropriate for the Nepali context, these two frameworks were combined, added to and adapted to develop a third novel framework aimed to provide a model of how the availability and delivery of CEONC services in Nepal should function. The process by which this was done was in three stages. Firstly, the two frameworks were compared side by side and areas of overlap identified. These areas of overlap formed the basis of the combined theoretical framework. Where the wording of themes / domains was different, but the premise was the same between the two models, preference was given to the terminology utilised by Pouane et al. This was done based on the rationale that the Pouane study was a similar premise to this research, i.e. why some facilities perform better than others despite receiving the same initial intervention (training in case management of severe acute malnutrition in children in the Pouane research and the CEONC fund in this research) and therefore more likely to align to the findings of this study. Secondly, areas of difference between the two frameworks were then identified and either allocated under an existing theme (e.g. active recruitment and performance management from the Funk model was defined as human resource management and included under staffing and qualifications) or added as a separate category (i.e. financial oversight). Thirdly, from the literature review and descriptions of the Nepali health system pre-federalism (Appendix 7), there were additional aspects of how a district hospital functions within the Nepali health system (particularly in terms of the relationship between the community, the facility and the central authorities) and financial management functions beyond those identified by Funk et al, that were considered to be potentially important to explore. These additional aspects were added to the final combined framework.

The final theoretical framework is shown in Figure 6 colour coded to identify which content was drawn from Pouane, Funk and this author. This model was used to develop the framework for all the data collection methods, in the semi-structured interviews and during field observations. It formed the preliminary guide for the deductive analysis of the data. It was not field tested ahead of data collection, based on the premise that the majority of the framework had been tested through the Pouane and Funk studies. Based on the study findings and reflections on the utility of this initial version of the framework, it was

disaggregated, reorganised and emerging themes were included. A revised framework is proposed in Chapter 6.

Figure 6: The theoretical framework

Staffing and qualifications	Availability and quality of Equipment / Supplies	In-service training, supervision and teamwork	Managerial style, monitoring and leadership	Financial Oversight
<ul style="list-style-type: none"> • Staffing • Qualifications • Human Resource Management 	<ul style="list-style-type: none"> • Quality of CEONC Equipment and Supplies • Infrastructure • Procurement 	<ul style="list-style-type: none"> • Induction of new staff • In-service training of medical staff • Supervision • Teamwork and staff attitudes 	<ul style="list-style-type: none"> • Leadership • Managerial support and team building • Interaction and communication • Target setting and monitoring of performance • Awareness of progress • Perception of their role • Relationship with MoHP/FHD • Relationship with local community • Oversight by Hospital Development Committee 	<ul style="list-style-type: none"> • Budgeting • Financial management • Financial Reporting • Independent auditing

Adapted from Puoane et al 2008 (in green) and Funk et al 2013 (in red), additional in black from this author.

3.5 Data Collection and Analysis Methods

Yin (2003) advocates the use of multiple data sources for construct validity, to enable triangulation and ensure there are ‘thick’ descriptions and insightful explanations (Cousin, 2005; Yin, 2003; Yin, 2012). For each of the case studies in this research, there were at least three types of data sources with data being compared within and across case studies to maximise validity.

Data sources included archival records; semi-structured interviews with clinical, public health and management staff at the district level undertaken in Nepali (these were translated); semi-structured interviews with key informants at the central level in Kathmandu undertaken in English which were transcribed and direct observation of operations at the case study sites.

3.5.1 Archival records

Archival records are an invaluable tool of data gathering (Mills et al, 2010). Two categories of archival records were sourced for each district. Firstly, financial records: financial reports were sourced from the MoHP transaction accounting and budgeting control system (TABUCS) for the financial years 2013 to 2015. Financial information was also triangulated through the CEONC fund monitoring data (although this remained incomplete at the time of data collection). These records showed CEONC fund expenditure and acted as an indicator of financial management robustness within the district hospital and of financial reporting. Secondly, service delivery statistics at the district level were drawn from DoHS annual reports for the financial years 2009-2015 and from the hospital Health Management Information System (HMIS) for 2013-2014. This enabled identification of numbers of deliveries, utilisation of CEONC services and provided a cross reference on the quality and reliability of the service data available at both district and central levels.

3.5.2 Semi-structured interviews

Open-ended semi-structured interviews were used for gathering case study data and at the central level in Kathmandu. All staff with significant roles in CEONC fund implementation and delivery of CEONC services were identified and participated in interviews, the only exception was the Ilam Medical Superintendent who was absent during the field research. Overall 30 district level interviews were undertaken and 9 central level interviews. Within each case study district, participants were selected from public health officials, hospital management and clinical staff working in the obstetric unit. At the central level, key informants were selected based on their current or historical involvement in the CEONC fund development or the oversight of CEONC services. During data analysis codes were assigned to each of the interviewees. Participants were coded by their primary area of responsibility of medical staff (MS); public health officer (PHO), hospital management (HM) or central informant (CI). Table 12 shows the breakdown of interviewees within each case study.

Table 12: Semi-structured interviews

Case Study	Role Area	Title	Code	Language of interview
Nawalparasi	Public Health Officers	Public Health Nurse	PHO1	Nepali
		District Health Officer	PHO2	Nepali
	Clinical Staff	Auxiliary Nurse Midwife	MS1	Nepali
		Staff Nurse	MS2	Nepali
		CEONC Doctor	MS3	Nepali
		Medical Superintendent	MS4	Nepali
	Hospital Management	Accounts Officer	HM1	Nepali
		HDC Chair	HM2	Nepali
Rukum	Public Health Officers	Public Health Nurse	PHO3	Nepali
	Clinical Staff	Staff Nurse	MS5	Nepali
		Anaesthetist Assistant	MS6	Nepali
		Gynaecologist/Caesarean Provider	MS7	Nepali
		Department Head - Nurses	MS8	Nepali
		MeSu/District Health Officer	MS9	Nepali
	Hospital Management	HDC Chair	HM3	Nepali
		Accountant	HM4	Nepali
Makwanpur	Public Health Officers	District Public Health Officer	PHO4	Nepali
	Clinical Staff	CEONC doctor	MS10	Nepali
		Medical Superintendent	MS11	Nepali
		OT nurse (Matron)	MS12	Nepali
		Department Head: Maternity Ward	MS13	Nepali
	Hospital Management	HDC Chair	HM5	Nepali
		Accountant	HM6	Nepali
Ilam	Public Health Officers	Public Health Nurse	PHO5	Nepali
		District Public Health Officer	PHO6	Nepali
	Clinical Staff	Department Head: Operating Theatre	MS14	Nepali
		Anaesthesia Assistant	MS15	Nepali
		CEONC Doctor	MS16	Nepali
		Department Head: In-patients	MS17	Nepali
	Hospital Management	HDC Chair	HM7	Nepali
Central Interviewees	Technical Assistance Consultant	CEONC Mentor/NHSSP Consultant	CI1	English
		NHSSP Consultant	CI2	English
		NHSSP Consultant	CI3	English
	External organisation	UNFPA	CI4	English
		NGO	CI5	English
	Government	Government FHD	CI6	English
		Government MoHP	CI7	English
		Government FHD	CI8	English
		Government MOHP	CI9	Nepali

Interview questions were aligned with the research question and the theoretical framework (section 3.4). They were adapted as the study developed. Open-ended interviews were chosen to allow discussion to flow and show the complexities that exist which are unique to

a context or may give rise to patterns across the contexts (Yin, 2003). Kvale (1996) outlines considerations for preparing for interviews and these were reflected in interview preparations and interviewer training (Table 13).

Table 13: Planning for interviews using Kvale's guidelines

Kvale's guidelines	How this was carried out
Structured and clear (making clear the purpose of the interview and maintaining relevance)	<ul style="list-style-type: none"> • Interviews were semi-structured with key guiding questions prepared and peer reviewed in advance. Peer-review was undertaken by NHSSP consultants and researchers to ensure quality. • An overview of the study was verbally given to each participant as well as a written copy. Verbal and written consent was obtained at this point. • Prompts were developed prior to interviews if needed to help participants. • The interviewer checked that all the ideas from prompts had been explored before moving on to another question.
Gentle, open and sensitive (enabling subjects to say what they want to say in its entirety and in their own time and way)	<ul style="list-style-type: none"> • Interviewees selected the interview time and venue as far as possible within the time constraints of the field visits. • The interviews were semi-structured with no specific time limit, just a guide for how long they would take. • Following the questions, interviewees were given the time they needed to answer each question. • At the district level, interviews were conducted in Nepali being the most comfortable for the interviewees. At the central level interviews were conducted in English (with one exception) as participants were a mixture of nationalities. (The research assistant was Nepali speaking fluent English and where the interviewees were Nepali she provided any necessary clarifications.)
Remembering (recalling earlier statements or experiences and relating to them during the interview)	<ul style="list-style-type: none"> • As each interviewee was only interviewed once, the interviewer would refer to ideas or statements made earlier in the same interview if appropriate.
Interpreting and questioning (clarifying, confirming and disconfirming the interviewee's statements with the participant)	<ul style="list-style-type: none"> • Additional questions were asked in the semi-structured interviews to seek further information on points of interest to the research, or clarification of a statement made. • Each interview was audio recorded and a research assistant took notes during the interview. This allowed the interviewer to actively listen to the participant's answers. Digital recording was chosen for ease of data management and transcription. The transcription of each interview was typed up and reviewed by the interviewer within 48 hours of the interview

3.5.3 Direct observation

Mills et al (2010) note that direct field observations as an evidence source can contribute to a strong case study. They provide an opportunity for researchers to directly observe what is happening in the social setting, interact with participants, and participate in activities. This was used as the third source of data for the case studies. Field visits were made to each case

study site which enabled direct observations of district participants, organisational culture, behaviours and environmental conditions. The purpose of the field observations was to help triangulate the data collection from the interviews and to reflect any circumstances witnessed that might not be represented in the interviews. Field observations were guided by the theoretical framework and collected through formal field notes, a research diary and reported through discussions between the field and the author. Field observations were separately coded as FO in the analysis. Specific guidance was given to field investigators conducting direct observations (Figure 7).

Figure 7: Direct observation guidance

<ul style="list-style-type: none"> • Observe formal staff meetings (if occurring). Note interactions between senior and junior staff members e.g. if and how junior staff members express opinions/put forward ideas in formal meetings. • Observe informal interactions between staff e.g. between the DHO/DPHO and the MeSu: how do they behave towards each other? • Note conditions within the facility e.g. motivated/unmotivated staff; sufficient/insufficient resources; quality of equipment and facilities • Observe formal training (if occurring) and its nature e.g. participatory, skills based etc. • Observe informal training e.g. on the ward through ongoing mentoring of junior staff • Observe meetings which involve financial decision making. Note role of finance officers e.g. are they active participants in decision-making, providing advice or simply reporting figures. <p>Structure of field notes</p> <ul style="list-style-type: none"> • Date, time, and place of observation • Specific facts, numbers, details of what happens at the site • Sensory impressions: sights, sounds, textures, smells • Reactions to the recording of field notes • Specific words, phrases, summaries of conversations, and insider language • Questions about people or behaviours for future investigation • Page numbers to help keep observations in order

3.5.4 Field work

The original study design intention was for the author to undertake all the field work in May 2015. However, in April 2015, immediately preceding the intended field visit, a massive earthquake hit Nepal followed by a second large earthquake in May 2015. During the summer of 2015, there was significant political upheaval which resulted in blockades of the Indian border and a fuel crisis. Consequently, travel within Nepal became severely restricted and international traveller access to districts outside Kathmandu became limited. Thus, a revised approach to data collection was needed. This meant that the only viable data collection route was to utilise Nepali researchers. Therefore, through NHSSP, three Nepali researchers were identified who were experienced qualitative researchers (each had PhDs and their work

included a substantial element of research). Considering Kvale's (1996) guidance that "*unless the interviewer is well acquainted with the various topics of the interview, he is not likely to be effective*" (p.148), it was a requirement that the researchers were conversant with the CEONC fund and with CEONC service delivery. To maintain quality and consistency across the case studies a research pack was developed that included:

- a basic data sheet for each facility
- a consent form (in English and Nepali)
- guidance on direct observation methods, how to write field notes and on how to conduct interviews
- a participant information sheet (in English and Nepali)
- a peer reviewed research protocol
- a semi-structured interview tool
- key literature that informed the theoretical framework
- the theoretical framework.

Additionally, a training session via Skype was undertaken individually with each Nepali investigator prior to field visits. This ensured each of them had extensive knowledge of the interview themes, could conduct an informed conversation about the topic and knew what issues were important to pursue (*ibid*). The author, as principal investigator, oversaw all the case studies and held detailed discussions with each researcher before, during and after the field work.

In practice these changed arrangements had benefits. Firstly, given the greater travel flexibility of the Nepali researchers, there was the potential to undertake case studies in remoter districts over a longer period. The original intention was to collect data during May 2015 but this was extended to December 2015. This enabled an increase in the potential universe of case objects. Secondly, data collection by Nepali researchers meant that interviews could be conducted in the interviewee's language creating a more comfortable environment and removing the barrier of both a foreign interviewer and an interpreter. Thirdly, collection of direct observation data was improved as no interpretation of meetings or discussion was required. Fourthly, as this author was not undertaking field visits more time for data analysis and comparison was available with results fed back as interviews were

underway. Fifthly, to avoid the risk of bias as researchers may have a subjective view where they have met the informants and become immersed in case details the separation from the case study field work allowed the author to take a more objective overview of the evidence. Sixthly, having multiple investigators facilitated divergent perspectives to be identified (Pettigrew, 1986; Eisenhardt, 1989).

3.5.5 Data Management and Analysis

Data Management

A case study database was developed (Yin, 2003) containing the raw data. This database could be available for future investigators to review the evidence directly (if permission is sought from the MoHP and NHSSP with consent as necessary from participants). Data was stored on the author's laptop and backed up on a password protected USB stick. The database comprises:

- case study notes including reflective analysis/research diary and observations.
- interview tapes and transcripts: all interviews were recorded, transcribed and anonymised. Where the interviews occurred in Nepali they were transcribed and translated into English and then back translated into Nepali for comparison with the original transcript.
- case study documents: all documents obtained during the study.
- tabular materials such as financial data and service utilisation data.

Data Analysis

Data analysis and interpretation was undertaken following the approach described by Wolcott (1994) i.e. combining, organising and evaluating the data through description, analysis and interpretation. The analysis explored how things work or not using cross case analysis to identify key factors, relationships and patterns from the data. Interpretation focussed on meaning, particularly comparing with the literature (Simons, 2009). Two processes of data analysis were undertaken, both inductive and deductive. The rationale for utilising two approaches was to try to limit bias in the interpretation of the data. That is, but undertaking an inductive process first the aim was to not limit interpretation to the

theoretical framework. Then undertaking a deductive analysis process against the theoretical framework to enable comparison, utility of the theoretical model and identification of additional issues.

All data from the semi-structured interviews and direct observations were uploaded to Nvivo. Preceding the data analysis, the author immersed herself in the case study data, including the interview transcripts.

For the inductive analysis, a general inductive thematic analysis approach was followed (Thomas, 2006). Data analysis was guided by the research questions, multiple readings and interpretations of the raw data. The raw data was approached without a priori expectations of the results. The raw data was allocated into categories and coded. Each category was given a short label that reflected the specific feature of the category and a description of the category, including key characteristics, scope and limitations. Data coded into these broad categories were sub-categorised and linked in a hierarchical category system. Mindmaps were drawn to help visualise the key themes and recurrent themes were individually coded as they were identified. Decisions about what was more or less important was based on frequency of mentions from multiple sources and triangulation between district and central level data. Throughout the analysis process, there was continuing revision and refinement of the category system. These categories were subsequently incorporated into the overall model in an open network (i.e. no hierarchy or sequence between the categories) (*ibid*).

For the deductive data analysis, the data was reviewed again in its raw state and coded thematically against the theoretical framework. Data that did not fit the existing theoretical framework was then compared against the model formed through the inductive analysis process.

All data were examined within the context of the individual case study. As noted by Mills et al (2010), this enabled immersion in the circumstances of each case study. Additional desk research was undertaken by the author on the wider context of the district to fully understand the hospital's operational environment.

Each case study was written up in detail to support the generation of insight (Eisenhardt, 1989) such as to identify unique attributes and patterns in the data (see Appendix 6 for the

case study descriptions). Thematic analysis was used to identify and search for themes, reviewing themes, defining themes and writing up (Clarke et al, 2013). As proposed by Yin (2003) the analysis compared how the patterns evident in the case data fit with the theoretical framework and looked for plausible and rival explanations within the case that could suggest causal or interactive linkages within the health system.

Following the 'within case analysis' a 'cross-case analysis' was undertaken. This analysed data against the framework in two different formats. Firstly, data was aggregated across the case studies and, as demonstrated by Leonard-Barton (1988), tabular displays and graphs of information about each case were used to compare data. Specific categories were identified, based on the theoretical framework to look for within-group similarities as well as intergroup differences (Eisenhardt, 1989). Secondly, an analysis of the data looking for convergent and divergent data between the supposedly similar and different case studies, was undertaken. For example, looking for the reasons why some hospitals perform poorly and others well in terms of caesareans irrespective of the volume of CEONC funds they receive.

3.6 Ethical considerations

3.6.1 Ethical Approval

Prior to conducting the fieldwork, ethical approval was granted for the research from the University of Bath from its REACH committee (reference EP 14/15 135), in accordance with its research ethics policy. In Nepal, the Nepal Health Research Council granted permission to conduct the research in line with the research protocol (Reference No: 1906) (Appendix 4).

3.6.2 Informed consent

Before each interview a written briefing of the study was provided to the interviewee and written consent requested. This included the freedom to withdraw from the study at any time prior to data analysis. Once the case studies were completed the Nepali researchers submitted the signed consent forms to the author.

With participant observation, there is no clear line between when the research starts and stops, unlike an interview which is structured as separate from regular activities. To mitigate

this the author ensured that the Nepali investigators were transparent and open about the objectives of the research.

3.6.3 Anonymity and privacy

Anonymity and privacy were respected unless clear agreement to the contrary was reached with the participant. However, the nature of case study research meant that some findings could not easily be disguised without distorting the research and participants were made fully aware of these limitations prior to data collection as part of the informed consent process.

In the preliminary report that was submitted to the MoHP, the names of the districts and participants were anonymised. Central level findings were also anonymised. However, to differentiate between interviewees at the district level working in either the DHO/DPHO, HDCs, medical staff and central interviewees, broad classifications of 'public health officer', 'medical staff', 'hospital management' and "Central Informant" have been utilised.

3.6.4 Data security

All data held electronically was password protected and only those directly assisting in the research had access. Long term, data will be transferred to a password protected areas of the NHSSP server. Only personal data that was strictly necessary for the research was collected and retained and specific consent was obtained for its use.

3.6.5 Whistle blowing policy

Given the nature of the discussion around financing arrangements the possibility that fraud might be uncovered as well as the potential to identify clinical poor or malpractice was discussed with the University of Bath. Thus, a 'whistleblowing' policy was established. Fortunately, it did not need to be utilised.

3.7 Summary

In this chapter the methodology used in this research is discussed. The research design is described and the theoretical framework which shaped the processes of data collection, analysis and case study design is introduced. The approach to sampling is described and the

challenges and opportunities presented by environmental and political circumstances detailed. The specific methods used to collect data are described as are the processes for the analysis of that data. Finally, the author considered the ethical implications of conducting the case study research in Nepal.

Chapter Four: Results

4.1 Introduction

This chapter presents a cross-case analysis of the data, comparing and contrasting results from the four hospitals. It is structured as follows: 4.2 describes the operational arrangements and perception of the fund drawing on archival and interview data; 4.3 describes the case studies based on desk based research, service statistics and archival data; 4.4 onwards draw out the themes based on the case study data (principally archival data, semi-structured interview and field observations) and triangulated with the central level interviews. This chapter draws on the case descriptions in Appendix 6 and the description of the health system in Nepal in Appendix 7. The cross-case analysis aims to identify key factors, relationships and patterns from the data. The approach described by Wolcott (1994) was followed (Chapter Three) to organise and assess the data through description, analysis and interpretation. The main themes are illustrated with direct quotes from study participants⁷. Utilising the theoretical framework this chapter shows the themes that were identified from the data finding patterns between the better performing and poorer performing hospitals with the implications for the CEONC fund. These results are discussed and compared against the literature in Chapter Five.

4.2 The CEONC fund

To set the context a brief description of the CEONC fund is given, describing how it works in theory and in practice (Table 14). The general perceptions of key informants the fund and the CEONC programme are also presented.

⁷ NB: quotes from the districts are using the translated text which is translated to capture the Nepali use of language rather than sanitised into Queen's English.

Table 14: How the CEONC fund is designed and how it functions in practice

Functionality	Design	Practice
Fund size	Depends upon national budget settlement but is intended to finance perceived deficiencies in areas such as equipment and supplies and community interaction, plus funds to pay for contract staff to fill vacant posts in each clinical cadre required to deliver CEONC services. The fund size has increased as more hospitals have been covered.	No annual budgetary calculation exists of the current total cost of CEONC services. No calculation is made of the additional budget required to provide an extended CEONC service across Nepal. No quality of service objective is specified. No reliable actual financial and statistical information is available about current CEONC activity. The annual CEONC fund budget need is assessed by the FHD based upon their understanding of what is required with no consultation with hospitals. That sum is then adjusted as necessary to reflect Ministry of Finance (MoF) pressures.
Allocation to districts	CEONC fund allocation to district hospitals is based on FHD view of hospital need (e.g. staffing gaps, equipment gaps). No consultation was planned with hospitals and no financial or statistical information introduced to assess funding requirements.	Central allocation of CEONC Funds to district hospitals based on FHD view of need (in practice the CEONC mentor's understanding of the hospital need). No consultation occurs with hospitals and no financial or statistical information is used to assess funding requirements. This process raises the question whether a single individual can have accurate, comparative and comprehensive knowledge without supporting data and with no consultations. This process was judged satisfactory initially as only a few hospitals were supported. Currently many more are supported and ultimately all district hospitals will be.
Relationship to routine hospital budget	Intended to supplement the hospital's annual budget.	Acts as a supplement to a hospital's annual budget. Some hospitals still have no core funding for CEONC services.
Flexibility	Flexible: Intended to allow recipient hospitals to fund staffing (using temporary contracts), training, equipment and supplies, infrastructure or community outreach as local needs required.	Inflexible allocation based on the CEONC mentor's assessment of need. In 2015, post-earthquake, because of budgetary limitations funding was only available for staffing (see footnote 1).
Technical support	No technical support to CEONC services built into the programme.	One single mentor to provide technical support and skills building to <i>all</i> district hospitals as CEONC fund has expanded. Provides support to as many districts as possible. Intended to provide remote and in person training and mentoring in the provision of CEONC services – e.g. coaching on provision of caesareans. Intended to be government position in the FHD, though it isn't currently (see footnote 2).
Financial reporting of fund expenditure	No financial tracking accompanying fund built in the design. No audit of whether the funds were used to support CEONC activities specifically.	Limited and ad hoc financial tracking, partly through additional financial reporting template (introduced in 2014) and through the MoHP TABUCS. No single person responsible for

Functionality	Design	Practice
		tracking expenditure against the fund. Quality of financial reporting is poor.
Statistical reporting	No statistical tracking of CEONC activity was envisaged.	No statistical tracking of CEONC activity is undertaken and linked to the fund.
Consistency of budget allocation to districts across years	No recognition that CEONC fund allocations could vary annually and substantially.	CEONC fund allocations vary annually and variations can be considerable. This makes funding of the CEONC service unstable. No financial and, hence, service planning is possible.
Permanency of the fund	Intended to be a short-term fix allocated to specific districts.	Expanded as a top up budget to all districts, - now a long-term fix (NHSS 2015-2020).
Release of the fund	Annually in July at start of financial year.	Varies substantially year by year depending on when overall government budget is approved and released by cabinet. Has been released up to 4-6 months into the financial year. But no carry over to the next financial year is permitted so temporary staff contracts must cease at financial year end. FHD has encouraged hospitals to commit expenditure before the CEONC budget is settled. Some are reluctant to do so and uncertainty over the funding level discourages anticipation of budgetary availability.
Period for staffing contracts for temporary non-sanctioned posts	Single financial year contracting only.	Single year contracting. But as budget releases can be late into the financial year actual contract lengths can be truncated. Contracts cannot carry on beyond the financial year end.
Opportunities for contracted staff	Receive higher pay for being on short term contract; no additional benefits of housing, career progression or training.	Receive higher pay for being on short term contract; other benefits vary depending on local context.
Central management of the fund	Overseen by the FHD.	Overseen by the CEONC mentor (not government staff) (footnote 2).
Local management of CEONC services and any CEONC funding	Varies depending on hospital size. DHO manages services and funding at <25 bed. The hospital management manages services and funding at >50 bed.	Varies depending on hospital size. DHO manages services and funding at <25 bed. The hospital management (MeSu) manages services and funding at >50 bed. In practice, some confusion over fund management.

Footnotes:

1. In its workforce planning the MoHP allocates a certain number of permanent positions (sanctioned posts) across each cadre of medical staff to each hospital. However, this allocation is still based on the 1991 Health Policy, despite a population increase of 45% since 1991 (Shrestha et al, 2012). This inevitably causes the focus of allocations to be on staffing.
2. The mentor, although nominally filling a government position is not a civil servant but is a contracted person provided as part of an aid project.

Even though CEONC funding has deficiencies reactions from case study interviewees were overall positive. It is perceived to have increased service availability and patient flow.

“CEONC is an essential element. A positive side is that people have realised that they don't have to go out for caesarean services. People didn't come to the hospital for child bearing before. But these days they come and when they can't stand the labour pain, they will go for operation.” HM2.

“It has provided benefits. Mother and child are kept safe by caesarean services. Children get immunisations. The health of mother and child gets better” MS5

Anecdotally the programme has helped improve maternal survival, (although not verified by service data). It is perceived to have contributed to a reduction in onward referrals, which has economic benefits for both the community and individuals as referrals can incur great cost.

“This service has had very good impact, it has saved the lives of mothers. We did not have any maternal death last year.” PHO6

“It is running well. Mothers do not need to go elsewhere for a caesarean. Staff are feeling confident for the delivery; if any complication happens, caesareans are there for back up. It is a risk for both mother and child if they were referred to Nepalgunj. The economic burden of the community is reduced and it has also reduced individual economic burden.” PHO3

“The human resources are increasing. In the past, there was one paediatrician and me. Now, we have one surgeon. Our confidence has risen about doing the complicated cases too. The team is ready even if the case arrives at night like at 12.00 or 1.00 am.” MS10

The aim to recruit additional staff on contract to fill gaps is appreciated. The availability of more staff has encouraged district hospitals to accept more complicated cases and to move towards a 24/7 availability.

However, there are some challenges as the following quotation shows. These are explored in the cross-case analysis below.

“Emergency obstetric care aims at saving the life of mother and child. The most important thing is to reduce maternal mortality and neonatal mortality. I think this is the strength of CEONC. The CEONC program was launched in Prithvi Chandra Hospital under the government of Nepal. The provision of recruiting doctors, nurses, paramedics, etc. in contract under the program is an extremely good aspect. However, there are also downsides of the project.” PHO2

4.3 The Case Studies

A map of Nepal showing the geographical location of the case study districts was included in Chapter Three. Using the 2011 census data the districts range considerably in population size. Using a 5% Caesarean rate for the districts those with a higher rate are classed as ‘performing’ and those with a below 5% are classed as poorly performing. One district had a Caesarean rate of 4.68% but the hospital rate was well above 5% and this will be classed as ‘performing’. Table 15 shows basic data for each of the case study districts.

Only Rukum, a poorly performing district and hospital, was classed as ‘remote’ and its population has above average poverty levels. Nawalparasi has neither of these environmental problems but was a poorly performing district and hospital. Makwanpur, is a good performing hospital and, being only 87km, from Kathmandu is easily accessible. Ilam is a good performing district with a hospital which has a high caesarean rate. It is 525km from Kathmandu. Whilst Rukum could be adversely affected by its remoteness and Makwanpur benefits from its proximity to Kathmandu, Nawalparasi and Ilam’s performance suggest that other factors, besides geography, are important. The case study analysis, using the theoretical framework, identifies these other factors.

Table 15: District information for each case study.

	Nawalparasi	Rukum	Makwanpur	Ilam
	Low Caesarean rate		High Caesarean rate	
	Low CEONC fund grant	High CEONC fund grant	Low CEONC fund grant	High CEONC fund grant
Region	Western	Mid-Western	Central	Eastern
Type of district	Terai	Hill/Mountain	Hill	Hill
Remote / Not remote	Not remote	Remote	Not remote	Not remote
Area	2,162 Sq. Km	2,877 Sq. Km	2,426 Sq. Km	1,703 Sq. Km
Distance from Kathmandu	251km	409km	87km	525km*
Poverty levels against national average	Below	Above	Below	Below
Est. District population (in 2013/14)	661,107	212,982	422,626	289,531
Recorded no. of deliveries supported by health worker in the district (in 2013/14)	4,294	2,266	2,819	1,828
Expected no. of Caesarean in the district based on 5% of recorded deliveries	215	113	141	91
Actual no. Caesarean (2013/14)**	23	15	132	167
District hospital size (no. of beds at time of data collection)	25	15/25	50	25+
Overseen by DPHO/DHO***	DHO	DHO	DPHO	DPHO
Total deliveries in the hospital (2013/14)**	979	449	1455	833
Caesarean rate for the hospital	2.35%	3.34%	9.07%	20.05%
Caesarean rate for the district	0.54%	0.66%	4.68%	9.14%
CEONC fund grant (2013/14)	900,000NPR	4,000,000NPR	1,200,000NPR	2,900,000NPR

* Ilam is not classed as 'remote' because this term refers to various human development indicators and accessibility. Ilam is a hub for the Eastern region with good flight and transport connections.

** from the HMIS hospital data.

*** At the district level, depending on the size of the district hospital, responsibility for all health activities, including the organisation and management of district hospital, lies with either the District Health Offices (DHO) (if the hospital is a 15 or 25 bed facility) or the District Public Health Offices (DPHO) (if the hospital is a 50-bed facility). The DHO/DPHO has responsibility for administration of the budget and human resources, planning, monitoring and evaluation of district health service activities and supervision of health facilities activities and the activities of the peripheral health staff (see Appendix 7).

Sources: DoHS (2014/15) HMIS; UNDP (2014)

4.4 Staffing and Qualifications

Significant differences in staffing, qualifications and human resource management were identified from the analysis (Table 16).

Table 16: Staffing and qualifications

	Low Caesarean rate – poorly performing		High Caesarean rate - performing		Central level perspective
	Low fund	High fund	Low fund	High fund	
Theoretical framework	Nawalparasi	Rukum	Makwanpur	Ilam	
Staffing	<ul style="list-style-type: none">• No sanctioned staff responsible for CEONC services employed.• No additional funding for staffing from HDC.• Only one doctor available fulltime.• One or no anaesthetist or anaesthetist assistant (AA) available fulltime.• Reliant on staff taking on multiple roles / task shifting.• Limited numbers of OT nurses.• No staff available at certain points of the year.		<ul style="list-style-type: none">• Sanctioned staff responsible for CEONC services employed.• Staff costs partly funded by HDC.• More than one doctor available fulltime (up to three).• Have anaesthetist, OT and other staff available all year.• In Makwanpur, multiple anaesthetists available.		CEONC fund only intended to fill gaps in sanctioned staffing. But may still be insufficient if allocated sanctioned posts are inadequate for needs or non-existent.
Qualifications	Staff have appropriate training before being employed.	Staff inexperienced or training out of date.	Staff have appropriate training before being employed.		Acknowledge that in remote districts finding suitably qualified staff can be challenging.
	Local HR markets poor, particularly for some cadres of staff e.g. anaesthetists. Contracting difficult.		Local markets sufficiently buoyant to be able source qualified and experienced staff. Contracting easier.		
Human resource management	Because of financial reliance solely on the CEONC fund when delayed budget release occurs, full year contract staffing is not feasible. This inhibits ability to continuously retain staff. New recruitment process is lengthy which adds to delay if late release of funds.		Holders of sanctioned posts have permanent contracts. Because HDC will provide finance, additional contract staff can be appointed and are not subject to restrictive conditions which cause delay.		No progress made with the MoF to allow multi-year contracting.
	Ad hoc staff transfers made by MoHP without consultation affect ability to deliver.		No mention of ad hoc transfers.	Ad hoc staff transfers affect team’s ability to deliver.	Lack of HR planning centrally lead to ad hoc transfers.

4.4.1 Staffing, including recruitment

Multiple staff in key cadres such as doctors, OT nurses and AAs are critical to continuous service delivery. However, the CEONC fund only finances one post in each cadre. The poorly performing hospitals had a common feature, namely insufficient numbers of staff to deliver services. They often only had the minimum number of people in each position (for example, one doctor or AA) and if a vacancy occurred this affected performance. Or, if a second qualified person was available, this was often only part time. For example, in Nawalparasi, an anaesthetist vacancy adversely affected the surgical team's ability to undertake caesareans.

"When there was an anaesthetic assistant, I could manage my time well. But since I have to do it all on my own now, this has affected my work directly and indirectly."
(MS4)

In Rukum, if the doctor able to perform caesareans is absent no CEONC service is available and patients must be transferred elsewhere.

"cases were referred some times when I was alone, with no support staff; and sometimes when I was absent. We do not do elective cases here. We do only very needy cases.....We did 29 cases of Caesarean last year; about 10 cases were referred out." (MS7)

Because the poorer performing hospitals were also entirely reliant on the CEONC fund they were particularly affected by budget release delays. This caused gaps in staffing and therefore in service delivery.

"When CEONC grant is there, we can provide services for 2-4 months and when the project is not there, we can't offer services. It would be nice to provide services round the year and forever." (MS2)

Conversely, the better performing hospitals had at least three staff in key positions because they had diverse sources of funds. This meant services could be continuously provided and the hospital was less affected by delays in budgetary release. For example, Makwanpur has high staffing using budgeted sanctioned posts, CEONC funding and the HDC funding. Two

caesarean trained doctors, two staff nurses, six auxiliary nurse midwives (who are lower skilled than nurses) and one anaesthesiologist and two AAs.

*“I think it is good to have three staff. One should look after the emergency cases, the second should take the extra delivery and the third should see the post-operative ward”
(MS10)*

This disparity in staffing arises because sanctioned post allocations and health service delivery arrangements were fixed in 1991 when the population was smaller. They do not reflect the development of CEONC services nor the changing needs and size of the population. The cross-case analysis shows the CEONC fund size and distribution arrangements do not properly reflect local needs and that not all hospitals have access to other sources of funds. Financing problems are compounded because significant fluctuations occur in grant allocations between years. For example, Nawalparasi experienced the grant doubling between FY 2013/14 and 2014/15. This creates uncertainty and inhibits planning.

“We don't have any idea at all how much budget is released, how it is described in the red book, which donor agency is involved, etc. As we don't receive clear information, confusion is created. The planning for the CEONC program is done by the centre.” (PHO2)

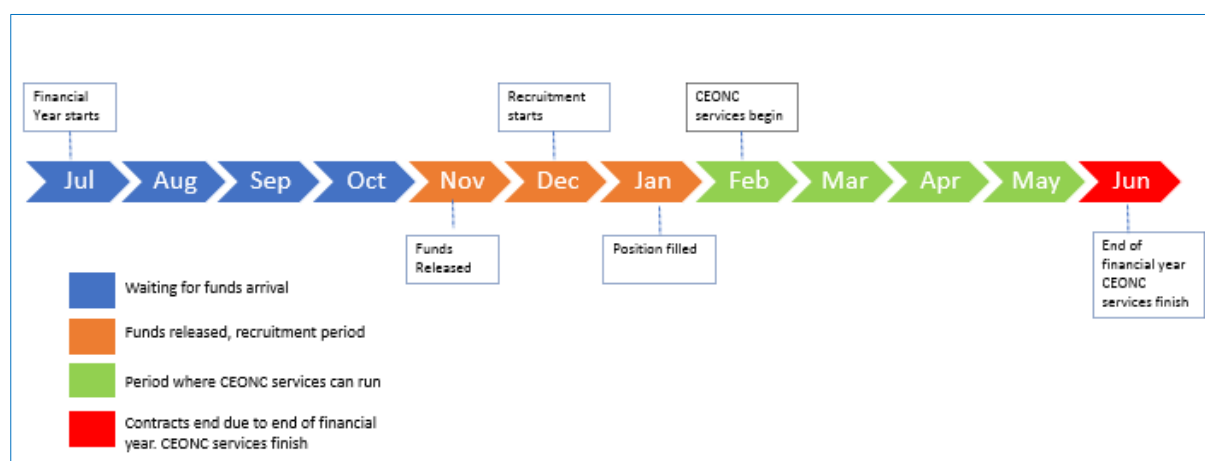
The ability of district hospitals to appoint contract staff is affected by the buoyancy of the local HR market. Those markets in the districts of the better performing hospitals were more buoyant with hospitals able to recruit appropriately skilled staff. Makwanpur benefited from its proximity to Kathmandu. The poorer performing hospitals experienced inferior local markets. For example, in Nawalparasi, the AA position became vacant. The local market for suitably trained anaesthetists is poor, consequently, this position was vacant for a year.

“For three years, we had an anaesthetic assistant in the hospital itself, but he has been transferred from here to a nearby health post. No one has applied for the position although we had put out an ad about this. We have needed an anaesthetic assistant for the last year.” (MS4)

Rukum, is another example of a remote district facing recruitment difficulties. This 'local market' problem was acknowledged by central officials concerned with CEONC services as a major issue. The only solution offered was increased salaries paid for from the CEONC fund. This is an inadequate response. The solution requires a national policy review into recruitment and training including other HR matters such as pay, incentives and opportunities for personal development.

Local HR market buoyancy adversely affects the poorer performing hospitals (Nawalparasi and Rukum) where they had long term sanctioned position vacancies and were reliant on contract staff funded by the CEONC fund. Delayed budget release, lack of financial predictability and lengthy tendering processes severely impacted their ability to provide regular services. Contract staff could only be appointed for short periods and each financial year the whole process had to be repeated once funding had been received (Figure 8). To try to overcome the problems and at least lengthen the period of availability of CEONC services, staff have been asked to work voluntarily or accept a period of time at the start of the financial year where they do not receive a salary on the promise of back pay once budget is released. This is a very unsatisfactory ad hoc arrangement.

Figure 8: Example annual timeline of services of a poorer performing facility



In the better performing hospitals of Makwanpur and Ilam, this staffing challenge was mitigated partly because fewer vacancies of sanctioned posts occurred and where there were gaps, the HDC financed contract staff. Contract staff appointment processes could therefore commence immediately in a new financial year and still meet the recruitment regulations.

Central interviewees acknowledged that the lack of multi-year contracting was an impediment to the smooth running of the CEONC programme. Whilst there has been pressure on the government over a long period to facilitate multi-year contracts, this has not been successful.

“Lots of advocacy was done to do the multiyear contracting and people realise its need also, but there are other administrative issues on multiyear contracting. There are some clauses that if they work more than this number of years they have to be made permanent, that kind of thing so financial department is not ready to make multiyear contracts. Although for commodity purpose they have made multiyear procurement but for HR they said ‘Ya, Ya, Ya’ it should be that but no change in action it has become an iron rule kind of thing.” CI3

4.4.2 Human resource management

Another problem is ad hoc personnel transfers by the MoHP, between districts or between hospitals and facilities within a district with little notice or coordination with the district hospital. For example, in Nawalparasi the AA was transferred in 2013 to a local health post (where anaesthetist skills were not required) without consultation. This adversely affects service planning and delivery and the effective utilisation of skilled staff. This was acknowledged by central level interviewees.

“The MoHP also need to change the HR transfer, they have to think they shouldn’t change the team. So there are many districts that due to disruption of the team, the service has stopped” CI3, 2015

“Sankhuwasabha had invested to train one of the Health Assistants to be an anaesthesia assistant. So he got trained and came back and the team was really happy that they have their own anaesthesia assistant and he would provide services. You know government transferred this person to a Health Post, to a health post!! So, this is a management issue, this is deployment not having the right person at the right place.” (CI3, 2015)

However, transfers do not just affect poorer performing hospitals. Ilam was also affected. Both a doctor and an AA had been transferred. This adversely affected service delivery. The hospital had to petition the director general (DG) of the DoHS to have staff returned.

“Only one AA is currently available. The person who has the sanctioned AA post in this hospital is now working in Taplejung hospital. I am trying to return him back to this hospital and I have already sent letter to the DG.” (PHO6)

“The HDC doesn’t know anything about the transfer of employees. We come to know about it only after the transfers are made. We have major problems when the doctors are transferred. For example, Dr _____ was working here but suddenly he was sent to Dhankuta. Then came Dr _____. He too got transferred. It’s our request that don’t transfer the doctors who carry out the operation. Patients from Panchthar and Taplejung come to this hospital by paying up to Rs 40 thousand to ambulances. It is sad to refer them to other hospitals because of the lack of doctors.” (HM7)

Ilam was better able to withstand the impact as it had multiple staff in each cadre. Makwanpur did not note transfers as an issue. This is perhaps a result of their proximity to Kathmandu which makes it an attractive location.

4.4.3 Qualifications

Although every effort is made to recruit trained staff this is not always possible. Particular problems are that previous training may not be relevant or out of date. The better performing hospitals aim to recruit more appropriately trained staff so that they are operationally effective from the commencement of their employment. For the poorer performing hospitals, this seems less possible and may be due to a combination of factors such as remoteness and poor local HR markets. This particularly affects contract staff recruitment.

To compensate for this, additional investment in training may be required. However, hospitals are not permitted to invest in training contract staff through the CEONC fund. This adds to the difficulties of those hospitals relying more heavily upon contract staffing.

Nawalparasi and Rukum, both poorer performing hospitals, aim to recruit only qualified staff and have limited sanctioned posts allocated to CEONC services which are often vacant. They

therefore must rely on contract staff but because of poor local HR markets find this difficult and the ban on funding training through the CEONC fund, as well as the short contracting periods (see above), make this objective difficult to achieve.

Both Makwanpur and Ilam, better performing hospitals, have an allocation of multiple sanctioned posts for the provision of CEONC services. Both aim to recruit trained staff. Ilam also benefits from being a training centre. Both hospitals have a strong HR market. Consequently, both have better qualified staff.

4.5 Availability and quality of equipment and supplies

Table 17 shows the themes that were identified which differentiated the experiences of the performing and non-performing hospitals across availability and quality of equipment and supplies.

Table 17: Availability and quality of equipment / supplies

	Low Caesarean rate – poorly performing		High Caesarean rate - performing		Central Level Perspective
	Low fund	High fund	Low fund	High fund	
Theoretical framework	Nawalparasi	Rukum	Makwanpur	Ilam	
Quality of CEONC equipment and supplies	Drug supply adequate.	Drug supply inadequate. Patients asked to supply drugs that should be provided free of cost.	Drug supply adequate.		Budgets are erratically available through the CEONC fund for equipment and supplies. Some years this budget line is cut.
	CEONC equipment is in short supply and what is available is poorly maintained.		Sufficient quantities of equipment available and well maintained.		
Infrastructure	<ul style="list-style-type: none">Some or all infrastructure inadequate to meet service needs.No NICU*.		<ul style="list-style-type: none">Appropriate infrastructure for CEONC services available.No NICU.		No comment on infrastructure.
Procurement	<ul style="list-style-type: none">Reliance on Logistics Management Division centrally to manage procurement.Delayed procurement caused by lack of proactive staff and supervision in Rukum.Reliant on outside sources (CEONC fund or NGOs) to resource CEONC equipment.Overall inefficient procurement arrangements.		Clear process for managing supply chain undertaken by the hospital. Procurement staff proactive.	Procurement staff lack technical knowledge. Can cause delays.	Some budget for procurement devolved to districts but no training provided so inefficient/incorrect purchasing occurs.
			<ul style="list-style-type: none">HDC willing and able to source necessary equipment and supplies if required.Overall better quality procurement arrangements.		

* Neonatal intensive care unit

4.5.1 Quantity and maintenance of CEONC equipment

A lack of equipment and supplies were particular challenges in poorer performing districts. In Nawalparasi, field observations noted the good quality maternity beds but, there was limited other CEONC equipment and what was available was 10 years old. Only a small number of complete sets of equipment for CEONC services with no drying equipment, were available. This created difficulties when patient numbers increase, for example, during the rainy season.

“In circumstances where we have two caesarean cases, we will have used both the sets for operations and it would be difficult for us to sterilise them during this rainy season to serve a third case” (MS2)

Some equipment, e.g. OT tables, OT lights and equipment for anaesthesia are difficult to acquire because of cost, even from the central Logistics Management Division. This problem is compounded when the CEONC fund allocation is restricted to staffing costs. Whilst each of the hospitals ideally would prefer more equipment, the performing hospitals felt that they had sufficient or, if not, their access to alternative funding sources enabled them to purchase it. The exception was newborn care equipment, where lack of a NICU meant that some cases had to be referred elsewhere. This was true for all the hospitals.

Provision of CEONC services demands a comprehensive range of facilities, including drugs and equipment. Where CEONC funds are restricted to financing staffing, those hospitals that rely more heavily or totally on the fund to provide CEONC services are more adversely affected. Nawalparasi and Rukum are examples. Again, lack of predictability in the availability of funds and how they may be used has a similar impact.

4.5.2 Infrastructure

Nawalparasi and Rukum each cited a lack of appropriate infrastructure as a barrier to the efficient delivery of services. This did not prevent services being delivered but raised quality of care issues, in particular, infection prevention in Rukum.

“The building is not good for operations. Sterilisation is not there in the operating theatre so it may get contaminated. There should be separate building for operations. Now, post op room is also there in the operating theatre. It is an old building, leaking water. There have been many repairs but it’s still leaking” (PHO3)

Makwanpur and Ilam both had good infrastructure and were able to maintain sufficient facilities to deliver services. Even after the earthquake, Makwanpur could identify an alternative accommodation to perform caesareans.

“the earthquake brought some problems. The upper floor where the operating theatre service was, has been damaged. This has created difficulty. The master plan is ready and as it incorporates the programme of building the new infrastructure, probably it will start within a year” (HM5).

When CEONC funding is not available for infrastructure and no other funding sources are available, maintaining continuity of CEONC services becomes difficult. Unpredictability of CEONC funds adds to this problem.

4.5.3 Procurement and supply chain

The poorer performing hospitals experienced difficulties with their procurement management systems, including timely engagement with the centralised procurement processes and ensuring supplies of high quality CEONC equipment. For example, in Rukum the management of this process was inadequate. Delays in obtaining supplies occurred and deliveries were not checked and neither was quality. These problems were ascribed to an inexperienced storekeeper and inadequate supervision by the MeSu.

“We bought one washing machine for the operating theatre, which is not fixed yet in the room.....blankets for patients were bought, but only 5 blankets were given to the hospital. Total 23 blankets were bought, [but] we have got only 5” (MS8)

“there was good support from the store before. I am feeling now we do not have support from the store as before. Many requests have been made for supply but we are not getting it” (MS5)

Inadequate funding adds to the problem of procurement for poorer hospitals and especially when fund use is restricted as in 2014/15. Only if alternative arrangements could be made could supplies be obtained. Nawalparasi, for example, relied on equipment provided by donor agencies.

Makwanpur and Ilam had a clearer procurement management process with staff specifically appointed. Ilam, had technically unskilled staff which could cause problems, but because Ilam had sufficient stocks, delays did not affect service delivery. Critically, the performing hospitals had available funding sources, other than the CEONC fund.

The central interviewees noted that the intention is for procurement to be managed locally. However, a concern was about the technical capacity of the local procurement staff.

“in Jumla they got solar lights and they bought few things but they didn't know that a small battery was needed and once the battery ran out there was no provision for that kind of battery to be available in the local market” (CI3)

The evidence from this research suggests that hospitals do need support to build procurement capacity. They also need a regular and predictable source of funds. Having sources of finance additional to the CEONC fund is an advantage.

4.6 In-service training, supervision and teamwork.

Table 18 shows the themes that were identified differentiating the high and low performing hospitals across in-service training, supervision and teamwork.

Table 18: In-service training supervision and teamwork

	Low Caesarean rate – poorly-performing		High Caesarean rate - performing		Central Level Perspective
	Low fund	High fund	Low fund	High fund	
Theoretical framework	Nawalparasi	Rukum	Makwanpur	Ilam	
Induction of new staff	No formal induction or shadowing. Introduction rather than induction.		Planned induction process which lasts several weeks and includes shadowing current staff.		No comment on induction.
In-service training of medical staff	Contract staff unable to access in-service training. All hospital staff have difficulty accessing staff training arrangements. Staff training out of date.		All staff (contract and permanent) able to access necessary in-service training. Staff training mostly up to date.		CEONC fund not intended for in-service training. Acknowledge that insufficient skills and experience are a barrier to service delivery. Reliance on CEONC mentor to train on a one-to-one basis.
Supervision	MeSu supervises the team	No formal supervisory arrangement in place	Day to day supervision by the MeSu and delegation of supervisory arrangement to department heads		Insufficient emphasis on training and developing managers or developing consistent supervisory mechanisms across hospitals.
	No structured approach to performance management.		Structured approach to performance management with rewards for performing staff and sanctions for poor performance		
Teamwork and staff attitudes	Good teamwork and mutual cooperation between CEONC team and other departments	Negative working environment that inhibits recruitment and causes divisions within the team.	Good teamwork and mutual cooperation between CEONC team and other departments. In Ilam, some tension amongst doctors in competition for financial incentives.		High dependence on individuals to ensure the system functions e.g. a well performing and motivated MeSu – rather than systematic monitoring of performance and mechanisms to hold those holding specific roles to account for outputs.

4.6.1 Induction of new staff

Induction of new staff is critical, particularly when staff recruited lack the relevant training and experience and, in remote districts, often work on their own in difficult environments. The performing hospitals all had a lengthy process of induction, which included new staff shadowing existing experienced team members. In the poorly performing hospitals induction consisted of a brief team introduction and facility tour but no formal orientation process or

opportunity to shadow staff. For example, in Nawalparasi, the lack of an induction process for new medical staff resulted in patient referrals as staff were unclear on procedures.

“I enquired about the reason behind referring the patient to Butwal. He clarified that the MeSu had not handed over necessary equipment, phone numbers of responsible staff members were not given to him and his terms of reference were not clear.”

(HM2)

This is a staff management issue which affects performance. Allowing the CEONC fund to be used to promote more effective induction arrangements would be a beneficial reform.

4.6.2 In-service training of medical staff

Given the difficulties of recruiting skilled staff in some local HR markets, there is a significant benefit in in-service staff training. In the poorly performing hospitals the lack of funding to provide additional training (particularly to staff on short term contracts) meant that staff providing CEONC services either did not have the appropriate level of training or it was out of date. In Rukum, the local HR market was so weak they were unable to find trained personnel. In Nawalparasi, in-service training has been relatively limited. The CEONC fund cannot currently finance training. Training is provided by the National Health Training Centre but restricted to sanctioned staff. Lack of training means lack of career development and this is a disincentive for medical staff to take up contracted posts.

“You are well paid but there are no other incentives like training opportunities. This is discouraging. Next time, I won't apply for CEONC.” (MS3)

Overall, OT training, AA training and infection prevention training were identified as the core gaps in the poorer performing hospitals. Most staff employed to provide CEONC services were “Skilled Birth Attendant” (SBA) qualified, although there were exceptions. However, the principle training that was highlighted as a beneficial addition was advanced SBA and OT training.

The better performing hospitals, created more opportunities for their staff to access in-service training and made this available to both contract and sanctioned staff using non-budget sources of finance. For example, Makwanpur has a systematic approach to in-service training,

with either the matrons or doctors providing on-site training, or staff taking it in turns to receive training. Whilst sanctioned staff were prioritised, contract staff were also able to access training. In Ilam, CEONC service delivery has benefited from targeted in-service training to key staff members. An example was provided of an inexperienced doctor who did not have the confidence to perform caesarean on her own. She was helped to attend another hospital to build her experience enabling her subsequently to provide caesarean.

“Then Dr. _____ was transferred to Sindhuli. Dr _____ didn’t have full confident for caesarean, she could not do caesareans alone. Then I sent her to another hospital for practice for 5/6 days where she did caesarean cases. Coming back to Ilam hospital, she started to do caesareans.” (PHO6).

Centrally, there is acknowledgement that staff lack skills. The role of the CEONC mentor was created, in part, to provide clinical guidance and support (both on site and remotely) to less experienced or confident staff. But this too, they observed, is an inadequate solution because of the added burden it imposes on a single person (the CEONC mentor). This may have been appropriate when few hospitals provided CEONC services but now inappropriate when all hospitals are expected to provide such services. Three of the four case study hospitals noted the CEONC mentor visited infrequently. Only Makwanpur, close to Kathmandu, had regular engagement. Overall, all the hospitals felt that additional training would enable them to provide better CEONC services and training should be available for both sanctioned and contract staff.

4.6.3 Supervision

In Nawalparasi, Makwanpur and Ilam, the MeSu was acknowledged as the main supervisor of the programme. In Makwanpur and Ilam heads of department also had delegated responsibility for staff. Rukum had very unclear arrangements for supervision, although this could be in part attributed to a newly appointed MeSu.

Makwanpur and Ilam utilised a systematic approach to performance management providing financial incentives and public appreciation to the best performing staff with a planned approach to managing poor performance. Additionally, Makwanpur had a standard programme protocol against which progress and accountability could be measured.

“We usually take 2 consecutive actions. First, we give verbal warning. Next time, we give it in written. Until now, it has not been necessary to go beyond this. They become aware after this. For the high performing staff, we gather them every 6 months and provide appreciative remarks in the mass and thus motivate them” (HM5)

Neither poorer performing hospital had a structured approach to performance management.

“I have not seen direct supervision on the spot within this 3-month period.” (MS6)

Centrally, there is acknowledgement that hospitals lack good management processes. However, there is no initiative to develop improved management processes or to provide better quality information to the centre for policy making. There is no central appreciation of what ‘good management’ involves.

“It’s more a system question, does the person have the reasonable system to work in, does he or she have a supervisor, who knows, who cares, who gives feedback, you know for us one of the things is...Is there a definition of what you are supposed to do this is what we called the minimum service standard” CI5.

4.6.4 Teamwork and staff attitudes

Quality and strength of teamwork was a relevant factor. Three hospitals reported a positive team environment including between sanctioned and contracted staff. This facilitated the delivery of CEONC services whether they were high performing or not. The attitude of the MeSu is critical.

“All are active. We all collaborate to respond to any case. For example, I work for CEONC but I never say that I work only for CEONC. Suppose we have a caesarean case and they have a delivery case. If they complete the delivery case first, they will come to support us and if we complete our case first, we will go to assist them. Staff members from both sides are supportive.” (MS2)

The exception was Rukum which had poor teamwork and a negative working environment. This inhibited recruitment and resulted in poor staff motivation. Field observations noted poor teamwork, low staff commitment and a staff unwilling to talk openly.

The central interviewees recognised that teamwork and positive staff attitudes were essential. Where there is a progressive MeSu and/or HDC acting as a local adaptive agent this will occur but this is not universal. Interviewees recognised that strong leadership and a committed team, make substantial difference to hospital performance.

“It makes lots of difference on the manager’s role and the team if the team is committed, and if they can, if they have the attitude of saying ok, I need to do it I have to do it and it’s my responsibility and accountability towards what they are doing, I think that would definitely make a lot of difference.”(CI4)

4.7 Managerial style, monitoring and leadership

Table 19 shows the themes that differentiated the experiences of the performing and non-performing hospitals across managerial style, monitoring and leadership.

Table 19: managerial style, monitoring and leadership

	Low Caesarean rate – poorly-performing		High Caesarean rate - performing		Central Level Perspective
	Low fund	High fund	Low fund	High fund	
Theoretical framework	Nawalparasi	Rukum	Makwanpur	Ilam	
Interaction and communication	Ad hoc, irregular management meetings. DHO undertaking administration of CEONC Fund.		Regular management meetings, organised by the MeSu, exposure visits, public audit and media meetings; bi-monthly meetings between DPHO and hospital administration; DPHO has an advisory role. rather than direct management role.		Districts where MeSu oversees CEONC fund management show higher provision of services. However, the DPHO has difficulty intervening and centre were unclear how to influence the local facility.
Target setting and performance monitoring	No formal targets set. Service delivery data unreliable. No monitoring of performance.		Implicit targets set by HDC. Service data records kept. General awareness of service data.	No targets set. Maternal and Perinatal Death Review process in place.	Targets set through health strategy. Unclear how this is translated to individual hospitals. Limited monitoring due to resource constraints at FHD. No linkage between service performance and financing.
Awareness of Progress	Staff don’t perceive there is a problem in performance (in the months’ services are provided).		Staff had an accurate perception of progress as		Not commented on.

	Low Caesarean rate – poorly-performing		High Caesarean rate - performing		Central Level Perspective
	Low fund	High fund	Low fund	High fund	
Theoretical framework	Nawalparasi	Rukum	Makwanpur	Ilam	
	Perceptions of service numbers hard to verify due to poor data.		judged against HMIS figures.		
Leadership	MeSu, DHO and HDC supportive, but lack leadership and management skills and tools.	Lack of local leadership	Strong leadership by the MeSu, DPHO and HDC.		Leadership and managerial support seen as critical, however no resources made available through the CEONC fund to support managerial development.
Managerial support and team building	Positive local work environment and motivated team but acknowledged deficiencies in management.	Cohesive management lacking. No teamwork. Relationship between DHO, MeSu and HDC, weak	Collaborative team working between the MeSu, DPHO and HDC contributing to a positive local work environment and a motivated team.		
Relationship with the MoHP/FHD	Limited or no supervision and monitoring from the centre. Would welcome more.		Good and regular support from the FHD.	Limited or no supervision and monitoring from the centre. Would welcome more.	
Relationship with the local community	Due to lack of continuity of services, community lacks trust in facility.	Community appreciative of any services.	Active community engagement and quality and availability of services engenders public trust in the hospitals.		Acknowledge that relationships can be fraught with the community. CEONC mentor can provide support to mediate relationships but is rarely on site.
Oversight by HDC	Financially weak HDC. HDC does not or cannot provide support in CEONC service delivery. Unwilling or unable to provide temporary financial support where CEONC funding shortfalls occur.		Strong HDC, which provides additional financial support for CEONC services. Supportive of and prioritises CEONC services. Seeks to finance staffing or other requirements to enable CEONC services to run continuously.		HDC seen to have a pivotal role in service continuity at district level. No common definition or tools that set the standard for how the CEONC service should be managed. Currently no resources to build capacity of HDC through CEONC fund.

4.7.1 Interaction and communication

There was a clear division in hospital performance in terms of interaction and communication and CEONC fund management. In Makwanpur and Ilam there were regular staff meetings where issues could be raised and discussed, plus regular meetings between the hospital leadership and the district health office. However, in Nawalparasi and Rukum meetings were ad hoc or informal. In Rukum, there were general meetings, but none specific to obstetric services. Team communication was weak and there was poor coordination among the team members.

“There is no separate meeting for only CEONC. We have general meeting where we have interaction. There was no formal meeting but we do meet informally.” (MS6)

The relationship between the DHO/DPHO and the MeSu is seen as critical by the central level. In practice this is largely driven by whether the hospital has fewer than 50 beds and therefore comes under the oversight of the DHO like Nawalparasi and Rukum or whether it is larger, overseen by the DPHO and therefore runs more autonomously like Makwanpur and Ilam. Regardless of the hospital size, a high degree of cooperation is essential.

In summary, clarity is lacking in the hierarchy of official hospital supervision arrangements and how they should occur. A need for ongoing cooperation, monitoring and supervision exists. For CEONC services this is limited to the role of the CEONC mentor and this is ad hoc.

4.7.2 Target setting and monitoring of performance

For all hospitals, no clarity existed about how, or if, goals or strategic objectives were set internally or externally either for the hospital overall or just for the CEONC services. Makwanpur appeared to have the clearest aim of increasing CEONC services annually. However, it was unclear if this was a formal target. It appeared more implicit than a widely publicised and supported objective. Generally, the lack of clear targets inhibited reporting and monitoring either by the DHO/DPHO or the FHD. As the FHD only put limited resources towards monitoring and data quality this meant robust tracking of service data was challenging.

The only targets that do exist are overall health system targets set through the NHSS. Individual district hospital targets reflecting local circumstances are not available. Consequently, although monitoring is seen by the FHD as a crucial task of both the FHD and the DHO/DPHOs the lack of objectives and poor data quality meant that any monitoring is largely ineffective. Also, the perception of the DHO/DPHOs themselves in the case study districts is that they are not responsible for monitoring.

There is also no linkage between the service activity information and the monitoring of hospital finances. There has also been no follow up to establish where CEONC grants are awarded what services result.

“In Tanahun and Syangja for 3-4 years we [the FHD] have always put money but they didn’t start services.” CI6

To summarise, provision of the CEONC fund finance is not conditional on meeting objectives or performance and the information systems to enable this to happen do not exist.

4.7.3 Leadership

In each district visited, except for Rukum, the MeSu was identified as the key person providing clinical leadership to the CEONC programme. The features of strong MeSu leadership were perceived by the key informants to entail:

- good cooperation with the HDC and the local DHO/DPHO;
- supportive of staff and delivery of CEONC services;
- encouraging collaboration with clinical staff in other departments;
- ready to engage with service delivery directly if needed;
- working effectively with the community to build the hospital’s reputation;
- establishing good communication mechanisms with the clinical teams;
- fostering a positive working environment; and
- providing a good example of work ethic.

Where present, these factors had a positive impact on the working environment, on the reliability of its administrative support functions and on staff morale. In Ilam, for example, the

leadership qualities of the previous MeSu were deficient. The result was a hospital with a poor reputation, conflict between doctors and poor staffing levels. To overcome this, the DPHO intervened.

At the beginning, the situation of Ilam hospital was not good. Gradually, I organised meetings and took leadership. I had managed with media people as well to promote the CEONC service. I had meetings with civil society, District Development Committee and political groups for CEONC service. Then after, political persons are supporting us. (PHO6).

The current Ilam MeSu is seen as a positive contributor to the overall reputation and operation of the hospital.

After joining by Dr _____ [current MeSu], the environment of the hospital changed and was good. There has been good reputation of the hospital. (PHO6)

The 2011 Devkota study recommended that where the DHO and MeSu posts are not held by the same person, responsibility for CEONC fund management should be shifted to the MeSu as they have overall responsibility for hospital services. Districts where this has occurred with the MeSu having greater budgetary control the benefit has been a higher level of CEONC service provision (Makwanpur and Ilam).

From the central interviewees, leadership is perceived to be key which really makes a difference in service utilisation.

“It worked very well in Gulmi, for example, where the doctor was dynamic, the local MeSu was co-operative and the population was generally progressive. They went from 0 to 80 caesareans within a few years of the doctor getting there. They tripled the number of patients from 15 to 45 thousand.” CI5

To achieve good leadership requires an ability to manage the dynamics of the team and its composition. Even though the need for good leadership is recognised by the central authorities, no steps are taken to promote this and there is no formalised system of holding hospital leaderships to account for results.

4.7.4 Managerial support and teambuilding

Systematic management systems and processes can have a positive impact on the staff working environment and on performance management. Makwanpur and Ilam both had a formalised process of minuted management and clinical staff meetings (including those responsible for CEONC services). Meetings occurred between the clinical staff, MeSu and the HDC and between the HDC and the DHO. These meetings enabled concerns over equipment, supplies, infrastructure and staffing to be addressed on a regular basis. Staff felt they were listened to and had avenues available to them to raise any issues. Whilst management meetings occurred in the other hospitals, they were more ad hoc and could be infrequent.

In Nawalparasi, Makwanpur and Ilam the MeSu encouraged collaboration and mutual support between the CEONC teams and other hospital departments, although the actual benefits appeared to be greater in the performing hospitals. This facilitated a more positive working environment and service delivery.

“We should observe other departments also. I should not stay here saying I belong to CEONC. When need, I should assist in surgery and emergency.” MS12

In Nawalparasi, a poorer performing hospital whilst the MeSu was reported to be a good leader, several management processes were lacking including regular meetings, performance management and induction.

“Our system management is not up to the mark. We need to make changes in it. If we make changes to our management, CEONC activities will never be stopped.” (PHO2)

Hence, to facilitate hospital performance, effective leadership must be underpinned by systematic management systems. Best practice should be identified and promoted, coupled with more effective information systems and monitoring. The MoHP or the FHD should encourage management development. This should be regarded as a general problem, not one specifically related to the provision of CEONC services.

4.7.5 Relationship with the MoHP/FHD

Except for Makwanpur, the hospitals felt that they did not receive much support or oversight from the FHD for the development and delivery of CEONC services. They were unable to effectively raise issues and because there was no regular monitoring of CEONC services by the FHD there was no 'learning' feedback. The CEONC mentor visited intermittently. Makwanpur benefited from participating in a pilot programme to develop a quality of care assurance mechanism, which resulted in regular visits from the FHD and the CEONC mentor. Its proximity to Kathmandu is likely to have increased the chances of being selected for pilot programmes as well as facilitating short visits by FHD staff.

"We have good support from the FHD. They make visits 2 to 3 times a year." (PHO4)

Frequent engagement with the FHD was not a driver of good or poor performance of a hospital. However, all the case study hospitals saw benefits in regular monitoring and closer supportive supervision by the FHD and the CEONC mentor.

At the central level, the introduction of the CEONC mentor in 2013 has been regarded as very important and successful in improving both the quantity and quality of CEONC services. However, with only one CEONC mentor not all hospitals can be supported.

"There is no monitoring from the district. Dr _____ [FHD CEONC mentor] had come here once in the course of four years. This apart, I don't think any agency or any person has come here for monitoring." (MS4)

The evidence from the research shows there is little effective supervision by the FHD and inadequate information flows (financial and statistical) for effective monitoring. The only supervisory resource is provided by the CEONC mentor. This person is also responsible for training for mediating in disputes between the service providers and local communities and for making the decisions about the allocation of the CEONC fund. With the expansion of the CEONC fund to all 75 district hospitals this present arrangement is unsustainable.

4.7.6 Relationship with the local community

The key factor affecting relationships with the community is the availability, continuity and quality of services. In Nawalparasi, views expressed included that it would be better not to provide CEONC services at all than provide them for only a short time period.

“It greatly hampers other services also. If this is the situation, there is no trust of people on the organisation. Clients think that if the organisation is providing services just for a couple of months or so, why go there? People need quality services without loss of time, in a quick way. So, it is natural for them to choose other places and this may put our performance in a negative light.” (PHO2)

Also in Nawalparasi there was a perception that the community lacked trust in the hospital, particularly after an adverse event where an infant died. This drove down the number of clients seeking services.

“After I came here, we used to perform 140-150 deliveries a month but following the incident [an infant death], the number has reduced to a mere 70-80.” (MS4)

Makwanpur and Ilam both reported a positive relationship with the community resulting in increased patient numbers. Rukum, too, reported a positive relationship with the community. As a remote district the expectations of the community are low about the level of services they can access. In Rukum, even an intermittent CEONC service was an improvement on the previous situation where patients had to endure lengthy or expensive trips to hospitals in other districts, or alternatively, receive no care at all.

The central interviewees acknowledged that the relationship with the community can have an impact on the delivery of CEONC services. In some districts, they accepted that clinical staff feel insecure in delivering services as the community can be aggressive and even violent, particularly if there has been a death because of a complicated delivery. The doctors may refuse to undertake any caesareans for fear of repercussions from the community.

“The Arghakhanchi community is violent so the staff there are afraid. After there was a death from a PPH [post-partum haemorrhage] case, they have not been doing caesareans again for 8 months, although doctors are available.” CI1

Where there have been poor community relationships the CEONC mentor has supported meetings between the hospital management, the DHO/DPHO, the HDC and the local community and also provided information to key stakeholders and the media as an advocate for CEONC services. A single CEONC mentor will be unable to undertake this responsibility when all 75 districts need to be covered.

4.7.7 Role of the hospital development committee (HDC)

A critical factor affecting all hospitals was the leadership and strength of the HDC. This includes its ability to generate funds locally for all health purposes and to provide financial supplements when central budget distribution was delayed or insufficient. HDCs are encouraged to appoint members with a specific interest in safe motherhood programmes. However, the evidence is that HDC strengths are variable, that their financial resource availability or willingness to support CEONC services is also variable and that the memberships of HDCs does not necessarily represent the structure of the local community or the patient categories, such as CEONC patients supported by the hospital.

Makwanpur and Ilam had strong HDC leadership with a willingness to commit funds to CEONC services.

“Our role is to make the hospital’s services more effective. We watch the service delivery by the hospital and play a constructive role in making it more effective.”
(HM7)

In Nawalparasi the HDC lacked financial resources (although it had an enthusiastic chair).

“Reforms may have been made in other areas but not in the sphere of human resources. It is because the hospital development committee lacks funds. If there is no money in the committee's account, how could things happen? For example, it is very difficult to appoint doctors and paramedics.” (PHO2).

In Rukum the HDC was ineffective in supporting CEONC services.

These differences of approach suggest that a financially strong and supportive HDC leadership can have an impact on a hospital's ability to deliver CEONC services, if only in providing an alternative funding source.

A critical relationship is that between the HDC and the MeSu. The performing hospitals had well-functioning and organised HDCs with regular meetings and seeking to develop local sources of funding. The perceptions of these HDCs by CEONC staff within the hospitals was that they played an active role in meeting their needs and were responsive if issues arose. In the non-performing district hospitals knowledge and interest of the HDCs in supporting CEONC services varied. Even if they were positive towards the programme they lacked the capacity to generate additional financial resources. The management relationships with the clinical staff and the MeSu were ad hoc and unsystematic. Further, the inclusion of those responsible for the safe motherhood programmes in the HDC, either as permanent or invited members varied and, as a result, the priority placed on the programme was mixed.

The reliance upon HDCs for funding is a function of the out of date staffing and hence budgetary arrangements for hospitals, the unstable CEONC fund distribution and payment arrangements. The HDC potentially acts as a temporary financier but its ability to do so entirely depends upon the priorities and finances of the HDC.

4.8 Financial management

Table 20 shows the themes differentiating the experiences of the performing and non-performing hospitals from a financial management perspective.

Table 20: Financial management

	Low Caesarean rate – poorly-performing		High Caesarean rate – performing		
Theoretical framework	Low Caesarean		High Caesarean		Central Level Perspective
	Low fund	High fund	Low fund	High fund	
	Nawalparasi	Rukum	Makwanpur	Ilam	
Budgeting	General hospital budget imposed on the district hospitals. Reflects 1991 allocation of sanctioned posts. Sanctioned posts include staff able to provide CEONC services but not based on updated population need. Additional CEONC specific budget imposed by FHD based upon assumptions of need made by CEONC mentor. Some years this budget can only be used for staffing. No formal process to engage hospitals with budget setting by FHD.				No forecasts of likely patient demand are available. Administrative resources needed to undertake a participatory approach not available. DHOs prepare district budgets which are then summarised by MoHP and submitted to the MoF and the National Planning Commission. However, neither the DHO nor the hospital has any influence over the budget for sanctioned posts which are wholly determined by the MoHP and based upon a 1991 policy (see Appendix 7). Central government budgetary processes then dictate how the fund envelope is developed considering all other policy pressures on Government. Nepal currently employs a top down system to allocate budgets to hospitals. Allowing local flexibility in the allocation of budgetary or CEONC fund resources is seen to be incompatible with national budgetary procedures. FHD and CEONC mentor deem they “know” the needs of the districts and allocate the CEONC budget accordingly.
Financial planning	Reasons why financial planning impossible: <ul style="list-style-type: none">• Fluctuations in grant amounts year on year.• No awareness of the total amount of grant available until it arrives so planning is impossible.• Rigidity in grant guidelines makes it an “inflexible” grant in practice.• No local input based upon forecast need.				FHD promises that funds spent whilst awaiting budget release will be reimbursed (but some hospitals do not rely on this). There is a lack of trust from the centre to the districts that funds will be managed appropriately, legitimising, in their view, continued central control.
	Delays in budgetary release have a significant impact on continuous provision of services – effectively preventing it. Gaps in budget not		Delays in budgetary release cause concern but not significant impact on continuous services because these are mitigated by HDC covering costs in interim and the		

	Low Caesarean rate – poorly-performing		High Caesarean rate – performing		
Theoretical framework	Low Caesarean		High Caesarean		Central Level Perspective
	Low fund	High fund	Low fund	High fund	
	Nawalparasi	Rukum	Makwanpur	Ilam	
	mitigated by HDC covering costs in interim or by funded sanctioned posts.		presence of sanctioned posts to which multi-year contracting rules do not apply.		
	Letter sent by FHD accepted, but did not have local funds to act on it.	Few staff were aware of the CEONC fund and were also unaware of the letter sent by the FHD.	Staff aware of letter and acted upon it.	Staff were aware of the letter but unsure of legal basis as not from MoHP and did not act on it.	
Financial reporting and budgetary control	Expenditure of CEONC grant consistently reported in TABUCS. Not reported to FHD.	Expenditure of CEONC grant intermittently reported in TABUCS. Unaware of requirement to report to FHD.	Expenditure reported in TABUCS. Expenditure reported to FHD. Figures consistent.	No expenditure reported to TABUCS. No expenditure reported to FHD.	FHD does not effectively engage in financial management. Budgetary control is limited to ensuring that grant allocations do not exceed the national budgetary allowance. Financial reporting only introduced in 2014. Not consistently followed up. No review of TABUCS reports of expenditure. Review of expenditure not linked to service outputs.
	Hospitals aim to keep spending within grant allocation.				
Regularly scheduled independent auditing	Audits occur regularly. Auditors unfamiliar with CEONC programme requirements and make inappropriate recommendations. Not useful in supporting financial management. Not clear what value of audit is given the discrepancies referred to in ‘Financial reporting’.				No comment on audit.

4.8.1 Budgeting

District hospitals have limited opportunity to become involved in the budgetary process. Budgets for sanctioned posts are MoHP determined, and for CEONC services, as previously explained, hospitals have no input at all. District hospitals can only influence, via submissions to the DHO/DPHO proposed budgets for equipment and supplies for mainstream hospital activities. CEONC grants represent only a small proportion of the overall hospital budget. Consultation with hospitals about CEONC budgetary allocations would facilitate planning and management.

“The CEONC budget is determined by the centre and the DHO receives authorisation to make expenditures. We spend the money under the same headings as we are told to. We should provide salaries to doctors, nurses and other employees. Similarly, we should purchase necessary tools, equipment and machines. Some money goes to medicines, while some is allocated for miscellaneous purpose, as per the headings. All this is done as instructed by the Centre.....If the district is allowed to design budget to make purchases accordingly, it would be much better.” (PHO2)

Significant variations occur in CEONC grant allocations each year and in how it can be spent. For example, in Rukum the CEONC grant allocation was more than halved between the FY2014/15 and 2015/16). This caused confusion and inhibited planning.

“There was a meeting. Only 5-6 persons involved in the meeting and decided how to use budget; We were angered” (MS8)

The central level interviewees explained that, whilst the CEONC fund is from the government budget, in some years it has been added to by bilateral agencies such as the UK's Department for International Development). The total CEONC fund budget depends on the number of districts receiving the fund. This has increased annually since its inception in 2008. The budget is developed by the FHD, then submitted to the MoHP who then submit it to the MoF and the National Planning Commission (NPC). The CEONC fund size has been increased as the number of hospitals involved but not necessarily in proportion. The exception was 2015 when the budget was cut to divert money to earthquake relief.

There are several challenges for the FHD in determining the size and allocating the fund. Firstly, previous year's expenditure on CEONC services is a key factor. However, expenditure reporting is unreliable and no consideration is given to the consequences of delayed budget release affecting spending.

"The MoF say that when 2 years back we had Rs.27 thousands budget allocated then the MoHP was only able to utilise Rs.23 thousands. So, next time when we asked for Rs.35 thousand and the MoF said when we gave you 27 you only utilise 23 then why shall I give you 35, I will not give it to you." CI1

"Some problems are there because finance allocate budget from July, but we are getting budget funds only after about 6 months, so for 6 months our programme collapses. The MoF take back the money and say you are not utilising it. I told them send the money in proper time then it will be utilised in entire 12 months. This is the quarrel between the minister of health and finance minister." (CI8)

Secondly, the relevant MoHP official must personally justify the budget requirements. If this official fails to do so the budget can be cut. Because of frequent senior government official changes this can result in inexperienced officials being involved.

"All departments write and send documentation on how much budget is needed to the MoF through the MoHP. The MoF call the director and programme manager and discuss the need for this fund. If you can't advocate and your explanation isn't good they can cut the budget. For example, this year the budget was 9 crore⁸ but after 15 days they cut the budget because the director changed and the new director could not adequately advocate to the planning person." (CI1)

Thirdly, CEONC fund allocations are not distributed through a transparent formula considering such objective factors as population, distance between birthing centres, number of posts required to be filled, the existence of referral hospitals. The allocations also do not consider more subjective factors such as training requirements, age and quantity of equipment, or investment requirements. No account is taken of alternative sources of finance such as the

⁸ A crore denotes ten million and is equal to 100 lakh in the Nepali numbering system

hospital budget or local HDC funds. Because distribution is based on the CEONC mentor personal knowledge of district needs this exposes the allocation process to political and other influences.

Fourthly, the evidence from the case studies shows the financial data available to the FHD is unreliable, and no statistical data is available showing the demand for CEONC services and the impact that the fund has had on service provision. However, none of the central interviewees mentioned this. A central interviewee said where districts have specific requirements they may contact those developing the budget in the FHD, but this is ad hoc and no formal process exists. No case study interviewee referred to this. Another FHD interviewee said:

“we calculate here and on the basis of whether a doctor is available or not similarly if an anaesthesia assistant, OT nurse, lab assistant are there or not on that basis we put money.” (CI6)

“After getting a bulk amount e.g. 9 crore, I email the people [in the FHD] who are heavily involved in the division of this budget.....they will sit together and display the districts. Suppose it is hard to find doctor in Dolpa so put more budget, easy to find doctors in Bhaktapur put less budget, equipment and these things they will sit and make the planning.” (CI8)

Overall the present CEONC budgetary and fund distribution arrangements are inadequate to properly support the 24/7 delivery of CEONC services. They lack transparency and ignore key objective and subjective factors.

4.8.2 Financial planning

Financial planning is an integral element of operational planning. A hospital cannot properly plan service levels for the following year(s), employ the necessary staff and ensure it has the appropriate facilities, drugs and other supplies, without knowing at least in broad terms what financial resources will be available.

Unfortunately, financial planning is not possible because:

- No grant distribution formula exists which enables a hospital to predict what its grant allocation might be;
- Grant levels can vary significantly between years;
- How the grant may be spent also can vary significantly between years;
- Payment of the grant can be delayed in an unpredictable manner beyond the start of the financial year.

The consequence is that CEONC grant cannot be used efficiently or effectively.

For all hospitals delayed budget release was a major frustration. The only solution for some hospitals was to divert sanctioned posts (which reduces capacity for other services) or seek other financial support such as from the HDC (which may or may not be forthcoming). Gaps in funding had a more catastrophic impact in the poorer performing districts with no alternative financial resources. Additionally, budgetary rules that prevent multi-year contracting stop the longer-term recruitment of contracted staff or their training if recruited. In Rukum, delays in budget release caused difficulties in paying staff. The HDC could not provide alternative financial support and this meant individuals working without pay for a period on the understanding that they will receive back pay once the funds are received.

“[Two Staff Nurse] are working voluntarily. We do not have operational guidelines yet, so we are not clear on how to pay for them and management of their salary. They will be paid from CEONC budget as per contract made with them. Because of budget could not be received on time, we are not able to pay them.” (HM4)

Budgetary delay is identified centrally as a critical factor in the inability to deliver continuous services. Delay is caused by bureaucratic factors rooted in parliamentary processes and contribute to the complexity of the arrangements for CEONC service delivery. These factors are perceived to be insurmountable and lie beyond the control of the MoHP.

Central determination of local needs coupled with limitations in how the CEONC fund can be used adds to financial planning difficulties. Originally the concept of the fund was to provide a flexible pot of money that the districts could spend in line with their needs. This initial flexibility has been replaced by specific guidelines about how the grant may be used and those guidelines can change without warning.

“if you put a flexible fund that’s very good. Then you would be able to mobilise for different things but sometimes it might be misused and now the implementation guidelines are also quite strict I think the concept was to give that pool of flexible fund so that they can spend as they need.” (CI4)

4.8.4 Financial reporting and budgetary control

Financial reporting is unsystematic across all the hospitals, and the quality of financial data, except for Makwanpur, is questionable. Only Makwanpur completed financial reporting to the MoHP and the FHD and reported the same data to both. This suggests that only Makwanpur exercised effective budgetary control. Without accurate financial reporting assessment of the utilisation of the CEONC fund is impossible.

The implementation of the TABUCS system in 2014 potentially improved the quality of financial reporting. However, the FHD does not compare actual expenditure against the fund allocations and no one has this specific responsibility. (TABUCS has a capacity to enable monitoring to occur although this has yet to be applied.)

There are problems. Hospitals do not properly record CEONC expenditure against the CEONC budget line. Either no financial reports are made in the TABUCS system or they are inconsistent with the separate CEONC programme financial reporting system to the FHD. The fund is only included in the TABUCS financial reporting as a lump sum. Consequently, analysis over different types of expenditure is impossible. The process of downloading reports from TABUCS is time consuming as each individual district hospital or district health office financial report must be accessed separately. A monthly analysis of expenditure is not shown so the impact of delayed budget release on expenditure is hard to demonstrate financially. Finally, some hospitals confuse spending of CEONC grant with other grants they receive (see 4.9.3).

To improve the analysis available from TABUCS the FHD introduced an additional financial monitoring tool in 2014. This tool was designed to analyse expenditure over specified subjective headings. However, only a limited number of hospitals are using it, making it ineffective as a monitoring mechanism.

Overall, the significance of having available, reliable and detailed financial information about the utilisation of the fund appears not to be appreciated by the FHD whose main concern is limited to ensuring that the overall fund budget is not overspent. No analysis is undertaken of whether individual hospitals have over or underspent their allocations or if the fund resulted in increased delivery of CEONC services or whether there is any correlation between the allocation of the funding, the service level outputs and the outcome results (i.e. reduced maternal and infant mortality). Establishing this is the critical challenge for the FHD.

The initial study assumption was that there would be a relationship between CEONC funding and activity. The analysis showed there is no such relationship. The likelihood of such a relationship is unlikely without significant reform given the very large swings in funding from year to year, the lack of updating of sanctioned post allocations, the lack of financial and statistical information on which to base fund allocations, the late payment of funds, variations in how funds can be used, the complexities of the staff contracting arrangements.

4.8.5 Regularly scheduled independent auditing

An audit occurred at all district hospitals. However, the lack of technical knowledge of the auditors on the nature of the CEONC programme led to inappropriate audit recommendations and the process was not seen as supporting CEONC fund financial management. The audit focus was on compliance with budgetary limits rather than the utilisation of the fund to achieve the policy objectives of the government. Audit reports did not address the weaknesses in the financial reporting arrangements which affect the reliability of budgetary compliance information.

4.9 Additional themes that were identified

Beyond the conceptual framework, several further themes were noted as drivers for levels of caesareans (Table 21).

Table 21: Additional themes identified

Additional themes	Low Caesarean		High Caesarean		Central Level Perspective
	Low fund	High Fund	Low fund	High fund	
	Nawalparasi	Rukum	Makwanpur	Ilam	
Referrals	Low levels of referral into the hospital. Referrals out to surrounding districts common.		High levels of referrals into the hospital. Limited onward referrals as hospitals have capability to deal with complex cases.		Volume of referrals not considered when allocating the fund
Quality of Care	Poor quality of care noted, including untrained staff providing services and poor staff attitudes and behaviour.		Systematic mechanisms in place to measure, monitor and address quality of care.		The FHD recognise that untrained staff provide caesarean services in some districts which compromises care quality.
Multiple overlapping programmes	Confusion present between the maternal health programmes, particularly between Aama and CEONC				Appreciation that multiple funding streams cause inaccurate financial reporting. This makes impossible accurate monitoring of the different programmes.
Managing public expenditure to achieve greater efficiency and effectiveness	Nepal is a poor country, prone to natural disasters. The CEONC financing arrangements demonstrate a focus on financial control but with no focus on efficiency and effectiveness. The incidence of natural disasters such as the severe 2015 earthquakes makes the focus on efficiency and effectiveness even more important. A feature of this is a need for longer term planning.				The MoHP feel unable to influence the MoF leaving all budgetary and financial decisions to the MoF
Staff motivation	Low service levels mean staff don't get sufficient exposure to maintain skill levels. Hospitals find it difficult to attract staff onto local contracts as career prospects are limited. Limited availability of training opportunities impacts staff morale as well as competence (particularly for contract staff).		Hospitals are attractive to staff as they gain sufficient exposure to further their careers. Pursuit of financial incentives can harm teamwork as individuals are perceived to take on workload purely for financial gain. Availability of training opportunities for all staff, including contract, increases staff morale.		Not commented on.
Trust between district and the FHD	Lack of trust between district and the FHD.		High levels of trust between district and FHD.	Lack of trust between district and the FHD.	Limited trust in the abilities and motivation of the district hospital management. Lack of detailed engagement with hospitals (e.g. the CEONC mentor is the only FHD representative with a specific CEONC responsibility).

4.9.1 Referrals

In the poorer performing districts, Nawalparasi and Rukum, their inability to provide services 24/7 and the lack of appropriate facilities (for example an adequate blood supply or NICU) meant that cases would be referred to other hospitals.

When complicated cases come from the community, we have to refer them to well-equipped hospitals. Reasons behind the referral of cases is due to inadequate staff and the lack of NICU. (MS3)

The better performing hospitals noted that referrals to them from both lower level medical units within the district and from neighbouring districts generated high numbers of caesareans. This could be driven either by the hospital providing (or being perceived to provide) a higher quality of care, patients by-passing lower level units or an unwillingness of the district hospital to refer patients on as they have already travelled long distances to reach the district hospital.

There was no doctor in Panchther, so cases are coming from there also. If doctors are not available for caesarean in Taplejung, then they also come here. (PHO5)

Further, a focus on community engagement and mobilisation towards institutional delivery, including campaigns about the importance of BEONC and CEONC services and improved recognition of the danger signs which indicate a potential need for interventions also drove referrals from lower level units to the district hospital. Conversely the poorer performing hospitals had low levels of referrals to them and were more likely to need to refer complex cases onward to other hospitals. These problems are not reflected in the CEONC funding arrangements.

4.9.2 Quality of care

There is a clear disparity in the quality of care between the performing and non-performing hospitals. Whilst quality of care issues lie beyond the scope of this research the management mechanisms associated with ensuring quality services appears to show clear variation between hospitals. Interviewees at the better performing hospitals expressed pride in their positive interactions with their clients. They noted use of protocols and tools for dealing with

issues such as complicated case management and infection prevention. At the poorer performing hospitals management of care quality was hampered by poorly trained staff and poor infrastructure. Few staff were motivated to improve quality of care and exhibited disempowerment that they would be able to effect change. Centrally, it was acknowledged the lack of suitably qualified doctors (in particular obstetricians) was a key impediment to delivery of quality services and task shifting to general practitioners who don't necessarily have advanced skilled birth attendant training or to the private sector, compromised quality services.

4.9.3 Multiple overlapping programmes

At the district level, there was some confusion between The Aama Surakshya Programme (Aama) and the CEONC fund. This is apparent regardless of how the hospital is performing. Aama is a programme focussing on increasing the proportion of deliveries that occur in health institutions, thereby reducing related morbidities and mortality. With Aama, hospitals receive payment per service provided which is included in hospital budgets. These can be used to provide financial incentives to staff and to purchase equipment and supplies. CEONC fund use is more restrictive, awareness of the fund more limited and sometimes conflated with the Aama arrangements. The result is hospital confusion particularly over the utilisation of CEONC funds.

“Interviewer: Do you know how CEONC budget is managed?”

Interviewee: I know about it. There are incentives for doctors, can be used for repair maintenance if required. I think incentives can be given to nursing staff and AA, but I don't think they get it.

Interviewer: Don't nursing staff get incentives?

Interviewee: That's what I am telling you. They received incentives out from 7000 per caesarean, but I guess they have not received incentive from CEONC budget.” (PHO5)

Lack of clarity affects district financial reporting as the two funding streams may be also conflated in the reporting. Central level interviewees recognise there are multiple funding streams with multiple budget headings and this makes accurate recording difficult. This is

compounded by aggregated reporting to the MoHP which means confusion between the multiple overlapping programmes cannot be identified and addressed. This points to a need for the much better training of administrative staff and better quality information systems.

4.9.4 Managing public sector spending pressures

Shortage of funds for public services and an inability to plan over the longer term affected all hospitals. Whilst multi-year budgeting is nominally a feature of central government budgeting, funding decisions are actually made annually. There is no practical focus on improving efficiency and effectiveness in public expenditure. A lack of financial resilience also means that unforeseen events, such as the 2015 earthquakes, overtakes any financial planning decisions. This affects funding for CEONC services even though the policy of expanding the availability of the fund to all hospitals is being maintained. Although the need for and ability to deliver efficiency and effectiveness lie beyond the scope of this study the obvious evidence is that the present hospital and in particular CEONC fund staffing and financing arrangements are a significant cause of inefficiency and ineffective service delivery. Reforms arising from this study will help improve efficiency and effectiveness in the use of public resources other changes are also required, not least in the arrangements for managing major disasters.

4.9.5 Staff motivation

Staff appeared to be motivated by various factors. Good leadership and management are important as are career progression, training and work load. Financial incentives affect some but appear not to be a main motivating factor. These were important factors at the better performing hospitals but not at the poorly performing hospitals.

In the highly performing Ilam hospital, staff felt they had opportunities to build their skills which improved their career prospects overall.

“The working environment is good here. We get to see interesting cases here. So, if you work here for some time, it’s easier to work at other places.” (MS16)

In Nawalparasi, a low performing facility, recruitment of contract staff was difficult because career prospects weren’t as good as those in government sanctioned positions.

The government staff get promoted and transferred, which increases their career prospect but the staff members hired by the CEONC fund don't have transfer opportunities and they have limited scope for promotion. (HM2)

A low case load in poorer performing hospitals with limited exposure to complicated cases meant that staff became deskilled because they lacked experience and this hindered career progression. The converse applied in the better performing hospitals. Availability of training opportunities for all staff (including contract staff) in the better performing hospitals also contributed to improved staff morale, as well as staff skills.

4.9.6 Trust between district hospitals and MoHP/FHD

Evidence exists of a lack of trust between the central authorities and at least some district hospitals. Trust is an important factor facilitating the development of delegation and accountability which in turn are essential to improve efficiency and effectiveness. Lack of trust develops from lack of contact and regular 'feedback' arrangements.

Makwanpur benefits from regular contact with FHD staff and this raises trust that the hospital needs are understood and championed at the FHD level. Equally this encourages the central authorities to use Makwanpur to introduce new initiatives, for example, to improve quality of care. Interviewees from all other hospitals (both high and low performing) expressed dissatisfaction with the relationship between the hospital and the MoHP who felt largely abandoned. This had adverse effects such as reducing their willingness to provide private funding for CEONC services when budget delays occurred. Overall, lack of trust encourages a more risk averse approach to service delivery. From the FHD perspective there is also distrust. The abilities and motivations of those working in the districts are questioned. This leads to a more centralised approach to planning and management as the capabilities of those at the district level to develop and manage activities, are doubted.

4.10 Statistical information

What is noticeable in the discussions about the CEONC fund is the lack of linkages between financial and operational performance. The focus of the CEONC fund is entirely upon finance, not what it is achieving. How this fund promotes the objectives of NHSS (2015-2020) or has

an impact upon maternal and infant mortality in the different areas of the country is not identified. Yet, establishing this would be an important step in improving the efficiency and effectiveness of the CEONC fund.

4.11 Summary

Overall the CEONC programme and the fund (despite its deficiencies) is positively viewed. It supports the provision of much needed services that can contribute to a reduction in maternal and neonatal mortality. There are clear differences in the institutional culture, leadership and management, and staffing between hospitals with high rates of caesareans and those with low rates. Key differences were continuous service availability; sufficient numbers of staff and ability to hire suitably qualified staff; provision of in-service training to all cadres; sufficient quality and quantity of equipment and quality of infrastructure. Underpinning the effectiveness of the CEONC programme is the availability and predictability of continuous funding. Here fundamental problems do need to be solved. Also, the relations between the FHD and district hospitals needs improvement and the workload falling upon the single CEONC mentor means that, as all 75 district hospitals are now involved in the CEONC programme, this single person approach is inappropriate. The CEONC fund cannot address an inadequate central staff planning system, or encourage a change in the system to allow more local discretion in appointments. These require other reforms including a review of the staff recruitment and assessment process to shorten the period involved. Other central/hospital relationships also require review. These include HR management with outdated sanctioned staff allocations and uncoordinated staff transfers. A strengthening of the MoHP financial management capabilities is also required. Other financial reforms needed include greater predictability by hospitals of the availability and utilisation of funds with less variance between years. Linking CEONC fund financing with operational performance data is essential to establish the efficiency and effectiveness of the utilisation of the fund.

Chapter Five: Discussion and conclusions

5.1 Introduction

This chapter summarises the key findings, interprets and discusses the answer to the research question “Why do some district hospitals in Nepal achieve better provision of CEONC services than others?”. There are wide disparities. The aim of this study is to understand why. The findings presented in the previous chapters are discussed, interpreting the case study and key findings to:

- Identify the factors (both funding and other factors) affecting CEONC service availability at hospital level.
- Assess the efficiency and effectiveness of the CEONC funding arrangements in securing a better utilisation of the CEONC services at the hospital level.
- Determine factors which enable or inhibit utilisation of the CEONC fund at the FHD level as a contributor to the delivery of more efficient and effective CEONC services.
- Explore lessons learned and make recommendations for future financing, management and delivery of CEONC services within hospitals in Nepal.

This discussion demonstrates the contribution to new knowledge that this study makes, identifies the revised context/mechanism/outcome configurations that lead to understanding what works for whom in what circumstances, and provides implications and recommendations for future financing, management and delivery of CEONC services. Finally, consideration is given to the strengths and limitations of the study and recommendations for further research.

5.2 Factors affecting CEONC service availability at hospital level.

The case studies illustrate clear differences between the well performing hospitals as measured by the caesarean rate and those that aren't. The key factors affecting CEONC service availability are the:

- i.) Quality of leadership and management including information and communication within hospitals.

- ii.) Quality of HR management i.e. the staffing arrangements, induction and training.
- iii.) Quality of the infrastructure.
- iv.) Ability of the hospital to predict the financial resources that will be available to provide CEONC services.
- v.) Financial autonomy of the hospital.
- vi.) Role and support of the HDC, particularly over community accountability.
- vii.) Accountability to the MoHP/FHD.
- viii.) Referrals.

These factors and their generalisability are discussed in the following sections and compared with the international literature.

5.2.1 Leadership and management

This study identified that leadership and management are critical to a well performing hospital (section 4.7). These qualities include: having a vision about the objectives to be achieved and being able to communicate that vision; development of a supportive staff committed to delivering healthcare (and CEONC services in particular), including an effective administrative staff, and in turn supporting those staff; encouraging collaboration between clinical staff across the hospital; fostering a positive work ethic; a reputation for quality patient care; and working effectively with the community to build the hospital's reputation. The presence of these factors influenced all hospital functions from clinical willingness to provide support where necessary, to staff training, to infrastructure and procurement and to the hospital administrative support functions. The well performing facilities adopted a holistic approach to clinical, institutional and staff management arrangements, including training. This included systems for setting and monitoring overall performance, supervision of staff and individual performance, establishing internal and external communications with the HDC, the DHO/DPHO and the local community and managing the finances of the hospital. Strong hospital leadership was critical to the overall functioning and ability to deliver CEONC services of the well performing hospitals. Conversely, poorer performing hospitals had weaker leadership and management which impacted staff engagement and motivation, as well as external accountability.

These findings, and how they affect provision of CEONC services, within Nepal are new. (No published research on leadership and management within health in Nepal was identified.) They are corroborated by other country studies. For example, World Bank assessments have been undertaken of the capacity of local health structures and the challenges faced in the implementation of full decentralisation in Thailand (Hawkins et al, 2009), Ghana (Couttolenc, 2012) and Ethiopia (El-Saharty et al, 2009). Whilst these are all from grey literature, they each undertook a systematic and robust approach to the study design, required to effectively inform the World Bank Country Status Reports. These studies included extensive analysis of the policy and management environments supplemented by multiple qualitative interviews. They identified that regions or districts within countries with strong leadership and management capacity led to stronger performance of the health system. Critically, they identified that managerial capacity was a prerequisite for devolved health services to achieve their goals. Mckee et al (2000) identified a potential reason for the relationship between good management and positive performance, namely good leaders can translate their vision into practices that inspire others with their values and principles, which may lead to shared ways of thinking and commitment that support a strong organisational culture. This resonates with the findings from the better performing facilities in this study, particularly Makwanpur (section 4.7.3).

Another feature of the impact of the quality of management was established by Marchal (2010) in Ghana who identified that the relationship between managers and staff has a direct impact on staff attitudes and behaviour in terms of task behaviour, absenteeism, staff turnover and the organisational culture. Mckee et al (2000), Puoane et al (2008), Mathole et al (2018) and Aberese-Ako et al (2018) similarly noted there were tangible benefits to patients from a supportive culture among clinical staff with professional job satisfaction being a strong measure of quality of care and that developing informal and formal internal structures, processes and mechanisms of communication facilitated problem resolution, development of motivation and trust and job performance. This is reflected in the case study findings, particularly from Makwanpur (section 4.7.3). Couper et al (2005) found that purposeful management meetings were a key ingredient to a facility functioning well. Puoane et al (2008) noted that clear and close supervision and leadership supported positive health outcomes. This is reflected in the data from the better performing facilities, for example, in Ilam a change

to a more supportive leadership was felt to have had a positive impact on the working culture, operations and reputation of the hospital (section 4.7.3).

Those case study hospitals with stronger management and leadership also made training available to all staff (sanctioned and contract) because they had an independent financial capacity and had overall better outputs in terms of service availability. Conversely the poorer performing hospitals either provided no, or limited, training even to those in sanctioned posts. Training also benefits a facility because it results in a more highly skilled workforce and stimulates commitment (section 4.6). This confirms work of previous studies (*ibid*; Couper et al, 2005), who noted that staff development was one of the key success factors in the management of well-functioning hospitals in South Africa. Training and capacity building also fosters a positive work environment (Couper et al, 2005).

This study also found that better performing hospitals placed more emphasis on formalised induction processes for new staff. A planned and comprehensive induction process facilitated the integration of new staff (section 4.6.1). This did not occur at the poorer performing facilities. Puoane et al (2008) demonstrate the importance of this finding, noting that formalised induction processes were correlated with better service provision. This helped newer staff become confident in case management and developed a social role for the inductor (often a senior official), creating opportunities to build relationships and informal communication networks. These social aspects have been linked to greater absorptive capacity for new knowledge and an increased likelihood that an innovation will be assimilated and sustained (Greenhalgh et al. 2004).

Another feature of effective management is in ensuring that supplies and equipment required to deliver services are available. This study found that hospitals which managed procurement effectively had fewer supply problems (section 4.5.3). By contrast, the hospitals that were not proactive and simply waited for supplies to arrive directly from the MoHP were not always able to determine which supplies would be sent and when from central stockpiles. This adversely affected their ability to maintain service quality and continuity. However, this finding contrasts with some grey literature which identified that some hospitals in Nepal purchased inappropriate maternal care equipment because procurement staff were unaware of the appropriate specifications (Devkota et al, 2011).

The data from the central interviews also indicated nervousness about the ability of hospitals to manage procurement (section 4.5.3). Geyndt (2017) identified that in 11 countries where hospital autonomy existed, delegating authority to hospitals to procure supplies and civil works encounters central resistance, partially due to rent seeking behaviour by suppliers (i.e. seeking to manipulate public policy or economic conditions to increase profits). In Kenya, the devolution of procurement responsibilities to the county health management teams was initially accompanied by significant delays in procurement of essential drugs (Tsofa et al, 2017). However, ultimately health facilities reported a better order fill-rate compared to the period prior to devolution (*ibid*). Further, Funk et al (2013) and Mathole et al (2018) identified that hospitals with a dedicated procurement officer responsible for managing the supply chain could “stay lean” yet avoid shortages. These alternative experiences suggest that where delegation is to occur it must be accompanied by transparent purchasing procedures and training in procurement is essential.

5.2.2 HR management and staffing

This research identified that managing staff effectively as well as having sufficient numbers available is a key factor in service availability and quality. This uncontroversial finding has been replicated in many different studies. For example, in Kenya in 2015, Wamalwa et al reviewing the introduction of free maternity services identified that staff shortages were a major problem, not only for the delivery of services but also because of the increased staffing workloads. The Global Health Workforce Alliance (2013) has stated that the sufficient supply and stock of health workers, with the relevant competencies and skill mix that correspond to the health needs of the population is essential to availability of services. There is consistent evidence from high-income countries that nurses value practice environments that ensure enough staff to provide adequate patient care (Aiken et al, 2002). A broad consensus also exists on the relationship between job demands (such as workload, time pressure and staffing levels) and burnout, particularly emotional exhaustion (Opie et al, 2010; Maslach et al, 2001). A positive, significant association has also been shown between high-nurse patient ratios and burnout (Sheward et al, 2005).

In Nepal, staff management is divided between the MoHP and individual hospitals. There are basically two types of staff employed in hospitals, viz. sanctioned and non-sanctioned or

contract staff. The MoHP HR interest is in the sanctioned staff, appointed via the Public Services Commission (PSC) (Appendix 7), and the district hospital interest is in contract staff. Each hospital is allocated “sanctioned” positions across different cadres by the MoHP based on the number of beds the facility has. However, the allocation has not been updated since the 1991 National Health Policy (when the population was 20 million, it is now approximately 30 million). The 2014 Joint Annual Review between government and development partners found, in 2013, 47% of sanctioned doctor posts at hospitals were filled. Only 39% and 55% of sanctioned posts for nurses at clinics and hospitals, respectively, were filled. Not one hospital had the required combined complement of a doctor, obstetrician, 5 nurses (SBA trained) and an anaesthetist (Anderson et al, 2014).

Sanctioned staff are automatically eligible for training but contract staff are not. Contract staff receive higher pay than sanctioned staff but their employment periods can be much shorter and more erratic.

The primary CEONC fund purpose is to provide finance to employ contract staff where “sanctioned” positions are vacant. The findings from all case studies noted the number of “sanctioned” positions allocated to each hospital was insufficient to be able to provide CEONC services 24/7. The better performing hospitals, where they had private financial resources, endeavoured to meet demand through employing privately financed contract staff and by switching resources between different medical requirements. Sometimes where funding is not immediately available, hospitals resort to unconventional practices to maintain services such as asking contract staff to work without pay in the expectation that ultimately funding will become available when they can be paid.

Ozcan and Horny (1999) recognised that *“institutional staffing norms based solely on population or institutional size do not adequately take into consideration variations of need within a country. This necessarily creates real problems in health service provision, not only through under- or over-provision of health service staff but also through the inappropriate allocation of different cadres of staff.”* (p.210). The current staffing allocations in Nepal have these deficiencies, they are:

- i.) Well out of date and do not reflect population movements or economic changes;

- ii.) Not reflective of current developments in medical care policy or medical practice, such as the development of CEONC services;
- iii.) Basing staffing simply upon a nominal bed capacity which is too limiting a factor;
- iv.) Not reflective of changes in hospital capacity since 1991;
- v.) Not reflective of locality specific factors or objective based and related to local service needs, staff utilisation and actual workload. (For example, it does not consider the effect of referrals.)

Staffing allocations should reflect a realistic and current assessment of need and funding should follow. If staffing allocations are inappropriate staff morale could be adversely affected and services may deteriorate. This is exacerbated where hospitals are required to deliver new services, such as CEONC services.

The existence of the CEONC fund demonstrates awareness of this problem but this study shows that the arrangements for fund management are inadequate. These inadequacies have caused some hospitals to look for alternative financing from non-budgetary sources including the local HDC. (This financing problem is discussed below.)

Another factor in HR management is that CEONC funds and funds available from non-budgetary sources can only be used to employ contract staff (Section 4.4). Contracts can only be issued for a maximum of 12 months if financed from the CEONC fund. In practice contracts are for even shorter periods if financed from CEONC funds because of their late availability. Contracts expire at the financial year end. Appointments may also be delayed by the complexity of the appointment process. Advance staff planning cannot occur because there is no certainty about the level of funding that will be available prior to the start of the financial year. Contract staff financed from other sources such as the HDCs are not subject to the same constraints but such funding is not comprehensively available and availability may also vary annually. Also, the CEONC fund may only be used to finance a single staff member per cadre which is inadequate to secure 24/7 service provision.

The study results show that, due to the topographical circumstances of Nepal and the variety of local languages and cultures (section 4.4.2), the centrally managed systems of recruitment and appointments for sanctioned posts is not particularly effective. The study identifies the existence of multiple labour sub-markets, local to each hospital, whose strength varies

substantially. This affects the ability of hospitals to recruit appropriately qualified contract staff. Both low performing case study hospitals had severe problems attracting qualified permanent staff selected by the PSC and attempts to recruit locally contract staff were unfeasible given the local staffing market. The converse was true for the high performing hospitals which were in areas with buoyant local staffing markets (section 4.4.2).

Whilst the PSC is responsible for the selection of sanctioned staff the MoHP is responsible for the management of the sanctioned staffing cohort. This centralised arrangement can result in HR management decisions being made centrally which have little regard for local circumstances. Thus, sanctioned staff may be switched between hospitals to fill urgent vacancies without either any long-term staffing strategy or regard to the immediate impact upon the hospital losing the staff. For example, in Nawalparasi, an AA was transferred to a primary healthcare unit: this transfer ignored both the creation of skills gap in the hospital and that in a primary healthcare unit anaesthetist skills would not be required.

Reliance on short term contractual arrangements to effectively manage the deficiencies of a centralised allocation system has itself problems as the literature indicates (Bossert et al 2000, Bossert et al, 2002, Grundy et al, 2003; Kyaddondo et al, 2003; Kolehmainen-Aitken et al, 2004; Munga 2009). Bossert et al (2002) studying decentralisation of the health systems in Ghana, Zambia, Uganda and the Philippines, noted that poorer, remoter and more rural districts had greater difficulty attracting qualified personnel with the converse for wealthier urban districts. Several studies reported that decentralising health workforce recruitment was associated with better attraction and retention of lower cadre staff, but poor attraction of specialised health workers. In Tanzania, for example, after undertaking decentralisation of HR functions to districts, rural districts were unable to attract and retain highly skilled staff such as medical specialists, leading the country to recentralise some of the HR management functions (Frumence, et al, 2013). In Nepal, newly qualified doctors must undertake compulsory service in remote rural areas, but this does not result in longer term retention of specialists and senior staff in such areas.

5.2.3 Quality of the equipment and infrastructure;

There is a distinct contrast between the low and high performing hospitals in the availability and quality of equipment and infrastructure. Low performing hospitals had inadequate and poorly maintained equipment and some, or all, of the infrastructure was inadequate for the purpose. This potentially affects the quality of care. High performing hospitals did not have these problems. Remedying infrastructure defects and updating equipment is impossible when CEONC funds usage is restricted to staffing as occurred after the 2015 earthquakes, even though some hospitals' infrastructure were adversely affected by those earthquakes.

5.2.4 Procurement

Procurement arrangements appeared to be weaker in the low performing hospitals affecting the availability of supplies and hence continuity of all, including CEONC, services. Local management should address this problem but whether they do so depends upon the quality of that management.

5.2.5 Financial predictability and autonomy

Financing of core hospital services through the budget is predictable. However, the linkage between funding, demand for, and the 24/7 provision of, CEONC services is not, nor how funding can be used. Payments from this fund are also made after the start of the financial year with no guarantee when they will be paid. There is no transparent formula for fund distribution and no reliable collection of data about CEONC activity or spending that has been incurred. Fund allocations vary significantly between years. Consequently, forward planning for CEONC services is impossible.

Reference has been made above to a potential source of additional funds, namely the HDCs but this depends upon the finances of the HDC and its willingness to provide funds to support the delivery of CEONC services. Where HDCs were able and willing to support their hospitals financially they had better CEONC performance (section 4.7.7). However, HDC funds are not evenly available across Nepal and HDCs in the poorer areas tend to have less funds available.

A further problem is that evidence of confusion exists about the financing of CEONC services because other funds exist such as the Aama fund, which is basically an incentive scheme to

assist a woman and her family financially for child bearing. Hospitals can be confused about how these different funds may be used and this is reflected in the annual financial returns of spending to the FHD and the MoHP. Inaccurate reporting exists over the utilisation of budgetary funds, CEONC funds and other funds such as the Aama fund.

At the time of data collection (2015) there was no linkage between the allocation of CEONC funds and the key performance identifier i.e. the WHO caesarean guideline, or any other performance information. Therefore, there was no way of enabling the FHD to utilise the CEONC fund allocation process to specifically assist those hospitals with low caesarean performance rates or to identify any impact. That some hospitals can be classed as 'performing' appeared to be simply a function of local circumstances, rather than a response to a centrally focussed policy.

Together, this lack of accurate financial information and no performance information means that neither the MoHP nor the FHD have the output or outcome information to justify to the MoF what an appropriate budgetary allocation should be for the provision of CEONC services. This also undermines MoF confidence in the ability of hospitals to make effective use of the funds being made available.

To improve efficiency and service delivery effectiveness, hospitals not only need certainty about funding they also need some discretion about how funds can be spent. Mathauer (2013), London (2013) and Mathole et al (2018) each identified that to improve efficiency, management needs discretion to move financial (and other) resources to their most effective use. Managerial capability is therefore an important factor in this. However, the central level interviews indicated that granting such discretion was likely to be resisted. (section 4.8, Table 20). These difficulties are also reflected in the international literature. For example, Geyndt in an 11-country study (2017) identified key systemic issues which reduced the success of policies granting autonomy to public hospitals, including central level officials' being reluctant to lose authority, ministries of finance wanting to maintain control over revenues and expenditures, public service commissions' wanting to maintain control over HR issues and ministries of health fearing a loss of detailed control. Yet, increased hospital autonomy has been shown to result in greater efficiency, improved quality of services, expanded accountability, increased understanding in communities about how hospitals operate and

serve the communities and improved equity in distribution of hospital services (London et al, 2013; Barasa et al 2017). In Nepal, despite the original conception of the CEONC fund as a flexible fund, in practice centralised policy control of the CEONC budget allocation and of routine hospital budgeting and staffing coupled with the unpredictability of CEONC funding and its late payment, significantly limits local managerial discretion and in turn the development of 24/7 CEONC services. What might have been an adequate arrangement to secure the delivery of CEONC services when only a few hospitals were beneficiaries is no longer adequate with all 75 district hospitals involved. At a minimum CEONC financial reform coupled with a link to policy achievement is essential to achieve more effective financial and hence operational CEONC services.

5.2.6 The role of the HDC including accountability to the community

One role of the HDCs is to act as the accountability link between the hospital and the local community. This is expressed in their structure. But it can only effectively provide that accountability link if it has a responsibility for policy, for agreeing objectives and performance and that they are achieved, and by holding the operational leadership to account. Operational leadership and day-to-day management should reside with the MeSu or the DHO for smaller units. Other roles include that the HDC provides support to the operational leadership in its judgements about priorities and in some circumstances, financial support.

This study identified that poor community relations have an impact both on the willingness of the community to access services and on the quality of the relationship between health staff and the people they serve. This study revealed that the better performing hospitals had a community outreach policy and a consistency in service delivery to the community (section 4.7.6). A study by Thomas et al (2012) looking at barriers to accessing services by the community in Nepal noted similar findings where staff absenteeism and short opening hours affected trust in services and deterred people from travelling to facilities, which might incur fruitless costs. However, the study by this author found that in the remote district, even intermittent availability of services was appreciated by the local community.

The need to work with the community has long been a tenet of health service delivery but services need to be acceptable otherwise the community will not access them (Tanahashi,

1978). To achieve this, hospitals need to work cooperatively with the community. This is a two-way process (Couper, 2005). This study emphasised the importance of community engagement and accountability (section 4.7.6). Results from Molyneux et al's (2012) systematic review of published literature of empirical papers on topics related to community involvement at peripheral health facilities in LMICs supported this finding. They identified how direct engagement of communities or users can enhance quality of care, appropriateness of health service delivery for users and patient satisfaction.

5.2.7 Accountability to and engagement with the central authorities (the FHD and MoHP)

Not only are hospitals accountable to their local community they are also accountable to the central authorities (the FHD and the MoHP). This occurs through the provision of clinical statistical information, and financial information, but for effective accountability this needs to move beyond reporting of facts and figures, and requires the central authorities to set and monitor performance against policy objectives and in addition the central authorities need the ability of to ask for explanations and justifications (Brinkerhoff, 2003). That statistical and financial information also needs to be reliable. The case studies showed both financial and statistical reporting were either unreliable or not sufficiently specific and linked to enable policy judgements to be made. Whilst policy objectives are set (section 2.3), it does not appear that the financial resources made available are compatible with achieving these objectives, principally that amendments to official staffing levels that would allow for continuous service delivery have not been done since 1991 and the CEONC fund allocation arrangements do not reflect specific hospital needs to be able for them to meet that desired outcome. A result of this lack of hard data is that resources required for the delivery of CEONC services and the need (or not) for funding are driven by perceptions of central officials, and rely heavily on the individual knowledge of the CEONC mentor rather than locally informed by individual hospitals.

At the time of data collection, health districts existed as part of the health service delivery structure (health district responsibilities are described in 4.3, Table 15 and Appendix 7). The DHO/DPHOs have responsibility for administration of the budget and human resources, planning, monitoring and evaluation of district health service activities and supervision of

health facilities activities. However, this process excludes the CEONC fund. There is no accountability by hospitals to the DHO for the utilisation of the CEONC fund, e.g. not even basic financial expenditure reports are requested or provided.

The main source of accountability (with the practical definition of accountability being extremely limited) is between individual hospitals and the FHD. However, in practice only the CEONC mentor has oversight of the delivery of CEONC services and this role is not currently official government staff. The case studies showed the CEONC mentor role is beneficial in terms of providing operational support and training when the mentor could spend time in the hospitals (section 4.7.5) but this is not for accountability purposes. However, the evidence is that even the mentor contact is very limited with the exception being one high performing hospital (Makwanpur) where there is exchange of information with the FHD for other purposes (e.g. a quality of care pilot study). The case studies also showed that demand exists from poorer performing facilities for the mentor relationship to be developed. Such an exchange develops knowledge, understanding and confidence. But this CEONC mentor role, is not, and should not be, responsible for holding the district hospitals accountable for CEONC service delivery. In practice, formal accountability arrangements do not exist (for example, no formal and consistent process of tracking the financial expenditure of the CEONC fund is in place) and consequently the FHD policy management role is not being performed. The unreliability of the statistical and financial information points to a need for a better quality financial management and audit process than exists currently because for effective accountability independent assessment of accountability robust data is necessary.

There is a key role for clinical mentors to help improve service quality, but with the programme now covering all hospitals, one mentor is insufficient. While the lack of mentor engagement was felt by both performing and non-performing facilities those with stronger management used other mechanisms (such as in-service training) to mitigate this. Quite separately there is also a need for effective accountability mechanisms to be developed to make it possible for the FHD to properly exercise its CEONC service managerial responsibilities.

Institutional weaknesses and limited resources to support the implementation, monitoring and control of local services exists in other developing countries. The grey literature provides

an example from Kenya, in an evaluation of the capacity of the Department of Family Health. This found that performance of the health system locally was affected by the limited staff numbers at the central level who were capable of providing appropriate advice, support or capable of sufficiently holding hospitals accountable beyond reporting of facts and figures, i.e. asking for explanations and justifications (USAID, 2013). Mathole et al (2018) identified in South Africa that both well and poorly performing hospitals experienced frustrations with the organisational culture of the central government, which was seen as not respecting the needs of health facilities. Within the education sector, also in Kenya, it was noted that effective implementation and utilisation of the education block grant benefitted from ministry auditors and inspectors visiting schools more often and offering guidance to school committees and head teachers on a continuous basis (Ayako, 2006). For Nepal, this would suggest that having a central function specifically designed to support improved delivery of CEONC services, would be a valuable reform but it does not provide the accountability channel necessary to enable the FHD to ensure that health policy is actually delivered.

Therefore, there are two distinct roles. The mentor role would though have to be properly staffed and capable of providing advice and support on a continuous basis. In Nepal, this would mean building on the role of the CEONC mentor. The responsibilities of the mentor should also be clarified. Is it to be just a training activity and acting as an arbitrator in disputes with the local communities? Or should it have a wider role determining how the CEONC fund should be allocated (i.e. the distribution arrangements) setting objectives and performance standards and monitoring individual hospital performance including financial and operational performance against objectives? This is a quite different role which would require the development of statistical, financial and performance information and ensuring that that information was reliable. This would impact upon the administrative quality of hospitals as well as upon the interpretive quality of the FHD in setting and assessing the performance of hospitals.

Accountability should be a two-way process. Information flows to the centre providing the basis for an assessment of the effectiveness of policy, financial and operational management at the hospital level. But this can only happen if the centre is clear about the objectives it wishes to see achieved and uses the information coming from hospitals to ensure that they are achieved and if they are not achieved, why not.

5.2.8 Referrals

High levels of referral from outside a district may be a cause of high levels of caesareans in some facilities and effectively vice versa. Referrals can occur for several reasons with an important reason being the quality and 24/7 availability of local CEONC services. Good referral pathways are critical in the delivery of CEONC services. Further, functional relationships and adequate referral interventions and systems between primary, secondary and tertiary facilities are crucial in saving the lives of mothers and newborns (Murray et al, 2006). However, in recent years, in Nepal, concerns have been raised that the changed demand for services i.e. increasing levels of institutional delivery (NDHS, 2016) may not have been matched by the distribution of supply, resulting in overcrowding of some facilities (NHSSP, 2013). Central policy should therefore be designed to ensure facilities that are referral centres receive appropriate levels of support to manage increased demand. This will require updating the arrangements for staffing and the distribution of CEONC funds including the arrangements for the investment in new buildings and equipment. However, there is no evidence this is occurring and the continued use of 1991 data for hospital staffing purposes and inadequacies of the CEONC funding arrangements demonstrate this.

5.3 Factors which determine the effectiveness of the CEONC fund as a contributor to the delivery of more efficient and effective CEONC services

This study has identified several systemic factors impacting the utilisation of the CEONC fund and the ability of health facilities to consistently deliver CEONC services. These are:

- i.) A lack of clear objectives for the utilisation of the CEONC funds;
- ii.) Intermittent and unpredictable funding flows including delays in release of funds and uncertainty over how those funds can be used;
- iii.) Incoherent financial and no specific/linked CEONC statistical reporting;
- iv.) Poor leadership and management including HR management and planning;
- v.) The existence of several overlapping programmes with a lack of clarity about their objectives, and
- vi.) Quality of engagement with the FHD.

A more detailed discussion of each of these is set out below.

5.3.1 A lack of clear objectives

This study has focussed on the different performance of hospitals as measured by the proportion of caesarean operations. The WHO established an optimal caesarean rate of between 10-15% of normal births to avoid death and severe morbidity in the mother. A rate of up to 10% would show improvements in neonatal outcomes (Betran et al, 2015). A maximum optimum caesarean rate is also relevant with a study noting that whilst health outcomes improve when caesarean rates are below 15%, they decline with a caesarean rate above 15% (Betran et al, 2007). Given the importance of this ratio, a key factor in the distribution of the CEONC fund would be expected to be how the fund availability impacts upon this ratio in the benefitting hospitals and if not, why? The purpose of the CEONC fund is not simply to spend money, it is to achieve an objective. However, no such objective is set or statistics gathered to demonstrate impact. Consequently, there is no appreciation of the effectiveness of the funding arrangement or how its distribution affects the efficiency with which CEONC services operate. Similarly, there is no recognition in the centralised HR policy arrangements, which are based upon an out of date allocation of sanctioned posts, of how that policy impacts on the delivery of CEONC services.

5.3.2 Intermittent and unpredictable funding flows

Without a major reform of hospital funding which reflected the need for CEONC service availability, a major problem is the annual unpredictability of CEONC funding flows and how those funds can be spent. Significant variations between years exacerbate the problem. This prevents longer term planning and results in short term ad hoc decisions which cause inefficiency and prevent, for some hospitals, 24/7 service delivery. These adverse effects could only be partly alleviated where HDC or other alternative funding sources were available. Budgeting is annual and this prevents multi-year, or even full year, service planning and the inability to predict possible levels of CEONC funding, or when it is likely to be received, prevents effective planning for this service. Ideally fund flows should be predictable and timely with consistent terms of usage or, if conditions of usage are to change, this should be signalled well in advance. Predictability usually comes with the development and utilisation of a robust, agreed with recipients, distribution formula. In Ghana, Aberese-Ako et al (2018) identified that erratic and unreliable sources of funding constrained hospital managers'

capacity to practice transformational leadership and left hospital managers feeling disempowered and frustrated. Adhikari (2013) noted, in his analysis of Nepal's health financing schemes, that allocations of financial resources for health care services are always critical and frequently unstable due to an annual budget process, small fiscal space, possible corruption and uncertainties in contributions of external development partners. Similarly, in Kenya, Wawaru (2014) demonstrated that health facilities in receipt of direct funding, delays in receiving funds and arduous financial reporting requirements created challenges to effective implementation and affected the ability of facilities to deliver services effectively. Unstable funding flows are a common factor in the financing of health systems in many developing countries.

Overall in Nepal, Krause et al (2013) outlined that budget preparation is formally well governed by detailed guidelines and procedures, but these are not always adhered to in practice as political elites and top officials have consistently influenced the decision-making process. The budget manual specifies a clear annual budget calendar, but this is not necessarily adhered to resulting in late approval. According to a 2008 worldwide survey by the OECD, Nepal in practice lags behind most countries surveyed on every key deadline of the budget calendar. In addition, expenditure ceilings set by the MoF have yet to become a credible constraint, which undermines efforts to link budget allocations to policy priorities.

Although outside the scope of this study, multi-year or "medium-term," budgeting is a critical issue that needs to be addressed in Nepal and until it is, efficient and effective utilisation of the CEONC fund will be adversely affected. However, a responsibility of the central health authorities is to work to alleviate the adverse effects. Examples would be the provision of indicative budgets in advance of the financial year and stability, transparency and predictability in grant distribution arrangements.

In Nepal, hospitals are not consulted about what CEONC funding is required nor is indicative information provided by the FHD. How the CEONC fund is allocated depends upon the FHD perception (primarily that of the CEONC mentor) of local needs. No transparent formula is used to distribute funds. Although originally designed as a general fund, to be allocated by hospitals over the different CEONC spending activities, conditions have been imposed limiting

how hospitals can use the fund. These conditions can vary annually and are unpredictable making forward financial and hence service planning impossible.

Research from the education sector in Kenya, Uganda, Tanzania and Mozambique shows that early and good planning is an imperative for effective implementation of grant mechanisms, and that transparency and accountability are improved when block grants are given using well known formula and eligibility criteria (Ayako, 2006). However, the formula for awarding of grants needs to be sufficiently nuanced to reflect differences between districts. For example, as noted by Ayako, instead of awarding equal amounts to schools solely based on enrolment, grant aid should differentiate between the needs of urban and rural schools. However, this is only possible where performance information is precise and not easily capable of manipulation. Vague categories, such as 'busyness' and 'utilisation' as used in Kenya led to confusion and resentment among schools who felt they had been misclassified (Opwora, 2009).

5.3.3 Incoherent financial and statistical reporting

A related factor is that with any centrally funded activity or service the central government through the MoHP also ought to know how the funds have been utilised and what that spending has achieved. This should influence the total sum available and the distribution arrangements for future year's funding. However, as indicated above, financial and statistical reporting can be incoherent and confused or even lacking, partly because of the existence of different information systems, coupled with poor quality financial administration.

Solving this problem will require a different approach to the management and utilisation of the CEONC fund. New performance information systems and better trained administrative staff are required.

5.3.4 Leadership and management including human resource management and planning

The quality of leadership and management within hospitals is crucial to the efficient and effective delivery of CEONC services. Yet no element of the CEONC fund resource is put into improving the quality of that management and leadership. The evidence from the case studies

points to the importance of this feature of hospital administration. Leadership and management do not occur spontaneously. The Kings Fund (a UK based charity) has identified five key cultural elements are necessary for sustaining organisational cultures that ensure high quality, compassionate care for patients, these include: inspiring visions operationalised at every level; clear, aligned objectives for all teams, departments and individual staff; supportive and enabling people management and high levels of staff engagement; learning, innovation and quality improvement embedded in the practice of all staff; and effective team working (West et al, 2015).

A feature of effective leadership and management is the ability to manage the key resource of staffing. Yet this is not possible within the Nepal system. As noted in section 5.2.2, the centralised allocation of sanctioned posts to each hospital is inadequate and outdated. This is a major systemic issue compounded by the inability of hospitals to enter multi-year contracts for staff in non-sanctioned positions and by central decisions to move staff without due regard for the consequential implications of such moves. No longer term staff planning exists. The disparities in the training arrangements between sanctioned and contract staff and in pay rates can cause friction. Management arrangements for contract staff are inappropriate as contracts can be for very short periods with no training opportunities unless non-budgetary sources of funding exist. These are significant disincentives having adverse effects upon service quality. This compares with sanctioned staff who are permanently employed and have training opportunities. These employment differences require careful management and materially affect the quality and 24/7 delivery of CEONC services. They also have adverse effects upon the efficient utilisation of CEONC funds. Within Nepal, Krause et al (2013) found that restrictions on local government's ability to engage in multi-year contracting (for fear of over-committing subsequent years) has led to an inability to ensure service continuity.

Worku (2013) identifies that to save mother's lives maternity staff should have access to a medical professional who has the skills and equipment. In Nepal, as in many developing countries, health facilities do not perform at the expected level or continuously. In the poorer performing hospitals CEONC services cannot be provided 24/7 because skilled staff are not available. Devkota et al (2011), noted that delays in CEONC funds distribution caused a lack of adequately qualified contract staff which together with a lack of sanctioned posts with

many unfilled positions created a serious HR problem. The similarity of these findings with this study demonstrates that little progress has occurred since 2011. Further, Bossert et al (2002) in their analysis of decentralisation of health systems in countries in Africa and the Philippines identified that where locally hired staff went months or even years without being paid, this resulted in a deterioration of care quality.

5.3.5 Multiple overlapping programmes and understanding the differences between them

One potentially important determinant of the success of the CEONC fund is the extent to which hospital staff, particularly managers, are aware of its purpose, objectives and how these relate to other programmes such as Aama. So far as the CEONC fund is concerned, this study identifies, for the first time, considerable differences in understanding about its purpose comparing the case studies and the central level interviews. This is despite the issuance of CEONC fund guidelines. The FHD regards it as a 'top-up' fund, to be utilised to supplement existing hospital budgets, whereas some recipient districts regard it as the sole source of funding for the provision of CEONC services. This misunderstanding is further compounded by real or perceived restrictions on the way in which the funds can be used, such as to meet salary costs only or for general use. Other funding sources such as the separately financed Aama programme, and special arrangements for the reimbursement of obstetric care were frequently conflated in discussions with the hospital teams. This affects the quality of financial reporting and creates confusion. Similar to Michael Lipsky's (1980) classic analysis of 'street-level bureaucracy', the officials in the hospital and DHO are unable to implement them all successfully. Instead, the case studies show that at the hospital level, the regulations of the different programmes are disregarded, and local routines are established which, depending upon the quality of management, are designed to meet local objectives rather than those of the government.

5.3.6 Quality of engagement with the FHD

Engagement with the FHD is limited and with some hospitals appears to be non-existent or at best infrequent and intermittent. The principal reason for engagement is to obtain support from the CEONC mentor to address training and community relationship issues. There is no

engagement which would develop an accountability relationship and such a relationship would be beneficial to both the FHD and hospitals. The mentoring and accountability relationships are conflated. Accountability is essential for the development of an efficient and effective CEONC service. But effective accountability requires the definition of objectives and adequate statistical and financial reporting showing for the CEONC service what is the objective of the CEONC fund allocations and how those allocations link with other hospital resources (which will require an updating of sanctioned post allocations and the budgets that accompany those allocations).

Quite separately there is a need for the development of the mentoring role. This is especially important given the expansion of the CEONC allocations to all district hospitals. The mentor should not have the CEONC fund allocation responsibility and that responsibility should lie elsewhere within the MoHP and ideally should be based upon a transparent formula agreed with potential fund recipients. The mentor should be able to advise on and even influence that formula but as a participant with others in its development and future modifications as experience unfolds.

5.4 A CEONC funding arrangement to secure a better availability of CEONC services in hospitals

This study has identified design faults in the CEONC fund that limit its ability to promote efficient and effective CEONC services. The main faults are:

- i.) Lack of objectives to be achieved.
- ii.) Lack of clarity as to how the totality of the fund is determined.
- iii.) Significant changes in fund allocations between years and the funds cannot be used to improve the quality of hospital management and administrative arrangements.
- iv.) Lack of consistency between years in how funds can be used with the FHD determining the subjective headings over which the fund can be spent, rather than the hospital manager.
- v.) No transparent distribution formula compounded by no consultation between the FHD and hospitals over the size and distribution arrangements leading to an allocation process which is inconsistent with needs.

- vi.) Delayed budget release.
- vii.) No fund flexibility between financial years and, as a result, staff contracting is limited to a single financial year.
- viii.) No recognition of the fact that some hospitals provide CEONC services within the financial and staffing limitations of their existing allocations.
- ix.) Inaccurate financial information and no statistical information available to the FHD about what is happening with CEONC service provision.
- x.) No effective accountability arrangements with accountability being subsumed into mentoring and therefore the FHD do not know how the fund is actually spent by hospitals or what has been achieved with the spending or why what has been aimed for has not been achieved.
- xi.) No recognition of the impact of referrals both into and from a district.

The result is that hospitals have no ability to plan and the FHD has little substantive knowledge of the impact of CEONC funding policy on maternal and newborn health.

These findings compare with other research. Bossert et al (2002) undertook a secondary study of existing studies on decentralisation of health systems in Ghana, Zambia, Uganda and the Philippines. Whilst restricted by the limited amount of primary research available in the four countries they could identify some key themes that resonate with the findings of this study. They identified that devolving budgetary responsibility can result in improved quality, transparency, accountability, and legitimacy owing to user oversight and participation in decision making; and that there is potential for greater equity through distribution of resources toward traditionally marginal regions and groups. The data from this study suggests that funds could be more appropriately allocated to the needs of the hospitals and by extension their clients, if they had more influence over the budgeting and allocation process. Further, Funk et al (2008) identified that in better performing hospitals annual reviews were conducted by independent auditors and their report was made available to donors and other interested individuals. In their study the poorer performing health facilities had neither control over their budgeting process nor were they held accountable for how allotted funds were spent. In Kenya, Opwora (2009) noted that hospital involvement in the decisions about funding and its allocation was perceived to have had a highly positive impact, increasing utilisation of the hospital services and improving access. The ability of hospitals to manage

their own financing had improved the operational environment, including the availability of supplies, infrastructure quality, and by allowing them to hire more support staff. Overall, making clear what hospitals are to achieve with CEONC fund allocations and giving local management more autonomy in determining how those funds should be used as well as being directly accountable for their use maximises efficiency, transparency and accountability and is a key recommendation towards improving the functionality of the CEONC fund.

Mathauer et al (2013) in their extensive systematic analysis of research on hospital payment mechanisms in LMICs identified substantial efficiency gains, such as a decrease in hospital bed numbers and in average lengths of inpatient stay, could be made by reforming hospital payment mechanisms regardless of patient income level.

Overall, if policy-makers in Nepal want to improve the efficiency and effectiveness in the utilisation of public funds the CEONC fund should address specific hospital needs, be based upon a transparent and predictable formula linked to objectives. The central health authorities also need better information on how hospitals, whether in receipt of CEONC funds or not, are using all their resources to deliver CEONC services. Linked to this, allocations of sanctioned posts need to be updated to reflect current needs and advances in medical practice as well as the development of medical services (including CEONC). Consistent and reliable reporting of finance, service utilisation/provision and health outcomes is necessary (Bossert et al, 2002). This would provide better quality oversight and monitoring by the FHD and result in improved CEONC service outcomes.

5.5 Other factors

Currently Nepal is establishing a federal state. This will impact on the provision of CEONC services. The problems this study has identified should be addressed otherwise provision of an effective 24/7 CEONC service under a federalised structure will be infeasible.

This study has not researched how federalisation will affect CEONC service delivery and therefore it cannot make specific recommendations. However, the research does show that unless significant reforms occur to CEONC service funding, hospital staffing and HR management processes, and that the central authorities have more regard to managerial standards and reporting quality, then federalisation carries significant added risks.

5.6 Revised theoretical framework

During the literature review for this study, two frameworks were identified that could provide the building blocks of an appropriate contextual theoretical model. These were the human resource management framework developed by Puoane et al (2008) and the five management domains identified by Funk et al (2013). These two frameworks were selected as they were developed from studies that sought to identify how different facets of management of a health facility impacted on its ability to deliver services. However, each of these models had their limitations (see Chapters 2 and 3) and in order to apply a framework that was appropriate for the Nepalese context, these frameworks were combined, added to and adapted to develop a third novel framework that sought to provide a model of how the availability and delivery of CEONC services in Nepal should function. This model was used to guide both data collection and the data analysis presented in Chapter 4.

However, based on the results of the study and comparison against the international literature, it was identified that the existing theoretical framework did not adequately explain all the results of the study. Whilst the original model facilitated the identification of the critical factors that needed to be explored to understand what should be taken into account when researching the provision of CEONC services in Nepal, they did not allow description of the interplay between systemic issues and local factors which appear from this study to have an influence on the provision of CEONC services.

The CEONC fund serves a valuable purpose but the fund itself does need to be separated from the CEONC service itself. The case studies have identified critical deficiencies that affect the provision of CEONC services and these include:

- i.) Inability to recruit skilled clinical staff because of the remoteness of the district;
- ii.) Inadequate induction training;
- iii.) Inadequate clinical staff refresher training;
- iv.) Poor quality or inadequate infrastructure given the likely demand;
- v.) Poor quality or inadequate equipment;
- vi.) Unreliable delivery of drugs and other clinical supplies;

- vii.) Poor quality or inadequate management;
- viii.) Lack of clear objectives, performance measures and HR management generally;
- ix.) Lack of skilled administrative staff.

Some of these deficiencies can be remedied (or attempt to be remedied) through the use of the CEONC fund but others may need to be remedied in other ways. The revised framework (Figure 9) incorporates the critical factors that need consideration for the CEONC fund, or indeed to any new fund for district hospitals, to be functional. It focuses upon the hospital and the relevant central ministry. Efficiency and effectiveness also depend upon other central ministries, in particular on prompt release of budget funds and allowing multi-year contracting. Unless these occur the benefits available from a revised approach to CEONC services and the CEONC fund will be much diminished.

This revised theoretical framework has 6 meta-themes with a further 24 sub-themes. It draws on the models of Puoane and Funk but includes other factors that are relevant to the delivery of CEONC services in Nepal. One factor is the integration of the CEONC service into the management of the hospital generally, a second is the quality of the data (both operational and financial data) which should affect the distribution of financial resources, goal setting and supervision, a third is the relationship between the central authorities and the hospitals with the central authorities making decisions without consultation with the hospitals and which effectively constrain or remove the local managerial discretion of the hospitals and a fourth is the quality of management.

Figure 9: Revised theoretical framework

Human Resource Management	Infrastructure, equipment, procurement of supplies	Autonomy of health facilities	Leadership and Teamwork	CEONC fund management	Central ministry
Adequate forecasting of staffing needs based upon forecast patient demand including referrals	Quality of infrastructure	Hospital budgets includes CEONC services with CEONC staff in sanctioned posts	Clarity in supervisory relationships between MeSU and HDC	Ability to prepare bids on CEONC fund for 'top-up' funds	Timely and systematic consultations with districts about CEONC service 'top-up' needs
Management of staffing including, appointments, promotions, dismissals, replacements,	Quantity and quality of equipment and supplies	Support HDCs in resource mobilisation	Formalised communications mechanism including regular team meetings	Coordination of budget funds, HDC funds and CEONC funds to maintain 24/7 services	Fund distribution arrangements agreed based upon hospital assessment of priorities managed against budgetary availability
Access to in-service training for all staff	Procurement capacity – ordering, stock keeping and quality control	Development of positive relationships with the community	Training and development of hospital managers at all levels	Quality of financial reporting to FHD and in TABUCS.	Timely budgeting and fund release cycle
Formalised induction processes		Accountability to the community	quality of service data		
Develop performance management systems			Develop relationships with FHD and CEONC mentor		Robust monitoring framework established covering financial inputs and service outputs

5.7 Summary of findings, contribution to new knowledge

This study demonstrates a complex interplay of factors and actors impacting on the delivery of CEONC services. Improvement of service quality depends upon different actors operating at different levels in the health system. The CEONC fund is a focussed functional fix to issues that have a systemic cause. A major one being the failure to update the arrangements for the distribution of sanctioned staff to reflect population changes, new services (such as CEONC)

and improvements in medical practice. Improvements in hospital service delivery depend upon many factors of which clinical practice is an important one but effective clinical practice depends upon a good quality of administration with effective leadership and management. Therefore, only improving the functioning of the CEONC fund will have limited impact. Ideally, a review is needed of health system financing and that in turn depends upon a review of national budgetary processes. As this is unlikely, in the short-term reform to CEONC service management arrangements, including developing a clarity about the objectives to be achieved, linking the funding to those objectives, coupled with better quality accountability arrangements so that the FHD can appreciate how the policy is working in practice, is essential. In addition, to secure current assessments of hospital need for additional financial support, updating hospital staffing allocations, coupled with hospital/FHD/MoHP level CEONC administration/management reform is necessary.

One critical factor, cited by both multiple hospital and central level interviewees, is the removal of intermittent and unpredictable funding flows. These together with uncertainty about how the funds can be used leave particularly poorly resourced hospitals unable to fund salaries, procure equipment and supplies or improve infrastructure. This also prevents any hospital, whatever its circumstances, being able to effectively plan service provision and therefore utilise its resources efficiently and effectively. As the fund is 'rolled out' to all district hospitals these problems will become more significant. Financing gaps resulting from late budget release add to this problem. These problems are compounded by the way in which the CEONC fund allocation process operates. This is based upon a simple assessment of financial need made centrally by the FHD without consultation with hospitals to identify needs or objectives to be achieved.

In a newly federalised Nepal, there will be a greater focus on decentralised planning and management of finances with implications for the provision of health services in general and CEONC services in particular. Reform will become essential.

Other systemic bottlenecks besides funding that can have a major impact on CEONC services provided by some hospitals are:

- lack of clear clinical and institutional leadership coupled with a lack of a substantive performance culture;
- lack of active support from HDCs;
- inadequate HR management caused by outdated allocation of “sanctioned” posts, inability to enter multi-year contracts, ad-hoc staff transfers and inconsistent arrangements for training, supervision and support;
- the existence of multiple overlapping programmes which cause confusion both in terms of expenditure and reporting, (the CEONC and Aama programme);
- inadequately trained administrative staff and inadequate audit arrangements;
- lack of accountability arrangements to the FHD resulting in inadequate monitoring and feedback arrangements;
- a need to separate accountability from mentoring.

This study shows that where a hospital has strong leadership and management this provides a positive performance environment with increased service availability. It also facilitates a better quality administration, improved induction arrangements, staff training, stronger procurement mechanisms and supports performance management. It has a positive impact on the hospitals’ ability to deliver services. Where that management is also supported by a functional, interested and engaged HDC, ideally with some financial resources willing to use them to support CEONC services, this is particularly beneficial.

This study shows, additionally to the current literature, that thinking that problems can be solved simply through the provision of additional funding to support a new activity is not enough. Clear policy objectives and accountability arrangements, which have specific regard to the variety of managerial/operational environments and to the physical and cultural environments that exist across a country, are essential concomitants to additional funding. The central authorities should consider how far local managers also need policy support and guidance and they should consider how far other policies might support or inhibit the development of the new service, and how different contexts might respond in different ways to the same policy intervention. This means that the central authorities need to be properly staffed to monitor performance. Another key factor is how far centralised decision making supports or inhibits a particular service development. In Nepal with its move to a federal

structure, consultation and devolution of decision making would appear to be a necessary component of policy development.

The next section seeks to identify these varying contexts through a revised CMOC and how different contexts respond in different ways to the CEONC fund (Table 22).

5.8 Revised context/mechanism/outcome configuration

As noted in 3.2.2, this was not a fully-fledged realist evaluation. However, this study did draw on aspects of that approach. A key part of realist evaluation that was drawn on was the revisiting and revision of the initial CMOC (described in Chapter Three). Therefore, following the data analysis and with reference to the international literature, a reconfigured CMOC was developed. This was based on the interpretation of the evidence-based findings presented in Chapter Four with the dual purpose of identifying recommendations that reflect the realities of implementation (section 5.8). As shown in Table 22, a reconfigured CMOC better captures the realities of implementation i.e. what works for whom in what circumstances. This reconfigured CMOC recognises that, in reality, there is not a single context but several and that there are, in effect, potentially two sources of intervention. The context is that all hospitals have limited funds and all hospital staffing of sanctioned posts is based upon 1991 assessment of needs and that in turn affects budgetary availability. In addition, categories of specific contexts exist which are set out in the table.

Table 22: Revised CMOC

Context	Intervention	Mechanism	Outcome
Hospitals with strong local management and leadership committed to CEONC provision, with strong local HR markets and financially supportive HDCs	CEONC Fund	Management use the fund to supplement available resources + clinicians feel supported by management and operating in an environment of reciprocity Performance objectives, integrated hospital and CEONC staffing, training and induction, widely disseminated information	Positive organisational climate that includes recognition, respect, commitment and trust which facilitates regular availability of CEONC services, even with restricted budgetary resources
Hospitals with strong local management and leadership committed to CEONC provision, with weak local HR markets and unsupportive HDCs		Performance objectives, integrated hospital and CEONC staffing, training and induction, widely disseminated information but local management feel frustrated by inconsistent budgetary funding flows. Lack of flexibility in funding makes it difficult to spend on alternative approaches (e.g. training). HDC unwilling or unable to plug CEONC resourcing gaps. Lack of trust in FHD.	Positive organisational approach to CEONC service provision but little or no increase in availability of CEONC services. Community trust in hospital may decrease as services aren't regularly available
Hospitals with poor local management and leadership and limited local resources (financial and human)		Additional financial resources in themselves are insufficient to motivate local management to focus on CEONC. Management does not regard provision of CEONC services as integral to overall health service provision which also mitigates against provision of appropriate training.	No change in availability of CEONC services
Hospitals fitting any of the above three categories but with proximity to Kathmandu or engagement in centrally supported pilot programmes or with regular CEONC mentor support	CEONC Fund + supplementary technical support by CEONC mentor	As above but with an Increased trust in support and improved technical skills in CEONC delivery	Increased availability of CEONC services and improved capacity of service providers
Hospitals fitting any of the above three categories but at a physical distance from Kathmandu with limited access to mentor support and pilot programmes	CEONC fund but without supplementary technical support by CEONC mentor	Inability to access CEONC mentor increases mistrust in FHD. Perception of lack of support or importance by the hospital	Limited additional impact on availability of services or capacity of service providers

The revised and expanded CMOC reflects the analysis of the study results and assimilates evidence from the international literature. This indicates that a wider response is required to achieve the desired outcomes that goes beyond a funding mechanism. From this, recommendations that contribute to the design and implementation of a more effective programme are set out below.

5.9 Implications and recommendations for policy and practice

Drawing from the revised CMOC, the implications and recommendations for policy and practice arising from this study for the provision of CEONC services are focussed at three levels: the health system and policy making environment; management and governance at the hospital and finally financing the CEONC fund itself.

5.9.1 The health system and policy making environment

A broad consensus exists that increasing availability of CEONC services is an important component of reducing maternal mortality. It ought to be an integral element of district hospital health service provision. However, not all district hospitals are properly staffed, equipped or financed to allow this. An attempt to solve the consequential problems has been the introduction of the CEONC fund. The challenge for achieving success from a mechanism such as the CEONC fund is that it assumes a simple cause and effect and linear direction between providing financial resources and achieving increased availability of CEONC services. However, this study shows the delivery of CEONC services demonstrates many of the facets of a complex problem. There are a variety of dynamics involved, with interactions between them; the incentives potentially available through the CEONC fund are weak as are information and monitoring systems. Problems may be generated by central or local actions and solutions can equally come from central or local initiatives. Trust may not exist between the central and local officials. This makes the system difficult to stimulate and steer, and requires consideration of the rules of interaction within the system and the extent to which they are adhered to (Cairney, 2012).

The ODI (2008) identified ten key characteristics of complex problems which have been compared against the characteristics of the delivery of CEONC services (Table 23).

Table 23: Complexity and CEONC services in Nepal

Concepts of complexity	Characteristics of complex problems	Characteristics of CEONC services in Nepal
Complexity and systems	1. Systems characterised by interconnected and interdependent elements and dimensions	CEONC system is characterised by interconnections and interdependent elements at all health system levels i.e. from the hospital level, to the district public health system, to MoHP divisions, to ministries beyond such as the MoF, the PSC and the NPC and between the hospital and the local environment (including population cultures) local jobs markets and HDC effectiveness in developing local accountability and its financial resources. It is also impacted by external pressures such as the WHO and country aid agencies. The fund itself, even as a nominally simple intervention, is influenced by a wide range of actors i.e. the MoHP, the FHD, the CEONC mentor, the MoF and the NPC, but notably not by individual hospitals.
	2. Feedback processes shape how change happens within a complex system.	Multiple feedback processes should occur, but do not. These should affect, for example, hospital actions in the delivery of CEONC services, qualities of training and mentoring, qualities of facilities as well as funding arrangements. All potentially have a dynamic influence on the CEONC services.
	3. The behaviour of systems emerges – often unpredictably – from the interaction of the parts, such that the whole is different to the sum of the parts.	The CEONC fund is operating in an environment of multiple policy interventions including those affecting healthcare generally, specific interventions affecting obstetric services (e.g. Aama), and the move to federalism. The CEONC fund is not isolated and is operating in a crowded policy ecosystem.
Complexity and change	4. Relationships between dimensions are frequently nonlinear.	The effects of the policies towards CEONC services are not linear, multiple other parties are acting on the delivery of obstetric services simultaneously (e.g. DHO, DPHO, hospital management, routine hospital service provision, the Aama programme, NGOs, etc.). Responses to other factors such as natural disasters affect the relationships between the FHD, DoHS, MoHP and MoF who influence the CEONC fund and individual actors' capacity to respond to the needs of the system. There is no clear coordinating leader.
	5. Small differences in the initial state of a system can lead to major differences later.	The most important difference is the scaling up of the CEONC fund from support to a few hospitals to support to all. This impacts upon the effectiveness of the fund as a policy support, unless accompanied by equivalent change to how the fund is managed and that other changes occur.
	6. The dimensions of a system change over time.	Staff involved in the CEONC system regularly change at central and hospital level. The system is highly reliant on the ability of individuals to take ownership and provide leadership. No clear measures exist against which poor performers can be held

Concepts of complexity	Characteristics of complex problems	Characteristics of CEONC services in Nepal
		<p>accountable. This results in instability of leadership poor management and variable team dynamics.</p> <p>Currently Nepal is undergoing a radical governance change as it moves to federalism. This will significantly impact the system and hence on CEONC service delivery. Further the interrelatedness between different aspects of the system from the budget, to HR, to community engagement are constantly evolving and changing.</p>
	7. Chaos and edge of chaos describe the order underlying the seemingly random behaviours exhibited by certain complex systems.	The Nepali health system is a moving, evolving multi-faceted organism especially within the context of federalism, which a simple financial intervention cannot effectively address.
Complexity and agency	8. Adaptive agents react to the system and to each other.	Some local agents, e.g. the local managers and HDCs adapt to their environment and support or inhibit the availability of CEONC services by their willingness to allocate resources (financial and human) towards sustaining continuous year-round services or to address problems. For example, in Rukum the HDC was not willing to support CEONC services, but in Makwanpur additional resources were made available thus countering some systemic problems. The CEONC mentor can adapt CEONC fund allocations based on his perception of 'need'.
	9. Self-organisation	Some local agents, the managers and HDCs, self-organise to compensate for the inefficiencies in the system, particularly in regards to delayed budget disbursement.
	10. Within a system of adaptive agents, co-evolution occurs, such that the overall system and the agents within it evolve together, or co-evolve, over time.	To maintain delivery of CEONC services hospitals have developed local policies where they are utilising hospital resources, seeking other funding sources and support. The system evolves on a reactive basis to circumstances which change annually. The CEONC fund itself has been adapted and developed, as circumstances change: i.e. major natural disasters affected how it can be used with the fund evolving from supporting a small number of hospitals to one that supports all hospitals.

Adapted from Ramalingam and Jones (2008).

As this is a complex problem, recommendations for policy and practice need to acknowledge that traditional policy and programme tools may be insufficient or inappropriate for developing impactful interventions (Love et al, 2017; Jones, 2011). Cairney (2012) identified four insights from complexity theory that are relevant for policy making and implementation. Firstly, that the policy process and its implementation is guided by a variety of forces and that

outputs of policies working on complex problems will only be realised under particular conditions. A policy that was successful in one context may not have the same effect in another and hence the need to develop and understand the CMOC (*ibid*). Secondly, systems self-organise and therefore are difficult to control. Thirdly, local contexts and the agents that operate within them are unstable and change rapidly, therefore both agents and organisations must adapt quickly and not rely on a single policy strategy (*ibid*). Finally, policy makers often seek to concentrate more power at the centre rather than understand the policy making environment and that top down implementation models might link success to simplicity and to a clear goal and select several officials to carry it out, without acknowledging that implementers will have to adapt the policy to respond to the context (*ibid*). Further, complex environments are dynamic, with a variety of actors engaging on issues in an array of different ways and generating effects that are unknown to each other (Cairney et al, 2015). Therefore, the effects of single policy interventions are not always linear where multiple other parties are acting on the same issue. So, although a policy might be created with specific outcomes in mind, the intended result cannot be guaranteed. The actions and behaviours of other interested parties may interrupt the linearity between action and outcome and this is reflected in the revised CMOC.

This has implications for the delivery of CEONC services and the CEONC fund arrangements. Firstly, Cairney et al (2015) note that the systems that are best able to reproduce in a complex environment are those which are highly adaptive. In Nepal, those hospitals that are more adaptive, because of better management aided by additional local financial resources, are more capable of responding to extraneous and unforeseen factors affecting the delivery of CEONC services. A feature of 'better management' may be, as recommended by Geyer et al (2010), 'soft management methods to replace traditional hierarchical practices'. In Nepal, this would involve updating some central controls over hospitals giving them more freedom to learn from their experiences and adapt to their environment. It would also mean that the form of central controls would need to change to make them more relevant (e.g. updating the staffing controls) and make financing more predictable. At the local level, it would mean encouraging the MeSu to adopt transformational leadership practices and create space for exercising power over certain decisions e.g. HR, financing and procurement.

This study has focussed on CEONC services only, but a more flexible, adaptive and locally managed health system and policy environment affecting hospitals generally would support CEONC service provision. Without that, not only are reforms required to the CEONC fund arrangements, but also central controls over hospitals, particularly over staffing and budgetary allocations to reflect CEONC service needs, require reform. Merely focussing on reform to the CEONC fund is insufficient. Changes to the way in which district hospitals and the FHD operate and interact in the provision of CEONC services are also required. To secure the advantages of these reforms more attention is required to the integration of CEONC service management and hospital management generally. This includes, the overall quality of management and the relationships between hospitals and the FHD, not least over the setting of objectives for the CEONC services, the monitoring of performance and the associated feedback arrangements which should emerge from better accountability arrangements. It would also mean being clear about the objectives to be achieved for the delivery of CEONC services, some of which would be funded through main hospital budgets and some through specific CEONC fund allocations. Those objectives would focus on securing a minimum 24/7 service provision and, at a more sophisticated level, aim at, for example, achieving a minimum target of 5% caesarean births at all hospitals. This would require a more sophisticated fund distribution formula and better quality performance information. The overall size of the fund would depend upon the national budget settlement for health purposes. A reform of this type, because it would increase the localist role, would be compatible with the move to federalism.

Such a reform facilitates 'bottom-up' policy making which acknowledges the realism of professional discretion (Cairney et al, 2015). This would allow professionals, like the MeSu to become involved in local policy development and MeSu representatives in the negotiations with the FHD about the size and distribution of the CEONC fund. This would strengthen communication between hospitals and the FHD and, as suggested by Cairney et al, communication should allow individuals to identify interdependencies in roles, shared and conflicting points of view, interests and values.

Improved communication and feedback about CEONC services, which is currently of poor quality, tells policy makers and hospital managers about programme implementation (Mathole et al 2018). Reporting should provide the FHD with actual evidence against

performance targets and how additional CEONC funds have been spent. Annual reports should be independently checked which means improved audit arrangements. Funk et al (2008) identified that in better performing facilities annual reviews were conducted by independent auditors and their report was made available to donors and other interested individuals. Independent audit should not just be a financial audit and it should look at performance. The medical quality of CEONC service provision also should be subject to an independent professional medical review.

All policy changes may produce unintended consequences and especially where operating in a complex environment. Consequently, exactly how policy changes will make a difference will be unclear (Sanderson, 2009). These types of reform require the development of a 'learning process' meaning acceptance of 'trial and error' and a willingness to accept accountability. The FHD should be clear about the objectives it wishes to achieve for CEONC services and it will also require the building of 'trust' between central and local officials. The focus of FHD support should then be on hospitals falling outside the boundaries set by the FHD (Geyer, 2012). A feature of reform should therefore include periodic review of its impact.

As Nepal adapts towards a federalised state, as Cairney et al noted *"policymaking systems change so quickly, and are so difficult to predict and control, policymakers should not be surprised when their policy interventions do not have the desired effect"* (2015, p.10). This may require CEONC policy to adapt quickly to reflect the policy dynamics that federalisation generates.

5.9.2 Hospital management and leadership

This study shows that a key focus of change should be on developing management and leadership and in particular the softer skills of leadership. Current policies, such as the CEONC fund, imply that hospital performance is often largely attributed to resource availability and "bottleneck" issues, such as finance, human resources, equipment, drugs and supplies. This ignores important skills and attributes of leadership and management such as values, trust, motivation, interrelationships and entrepreneurship, commitment, and specifically for health services, concern for quality of care and ultimately health outcomes. Even in resource limited settings, these skills can contribute to improved functioning of facilities as managers use

entrepreneurial skills and innovative ways to motivate staff and ensure hospital efficiency and effectiveness. This has been demonstrated by the high performing case studies.

5.9.3 Financing and the CEONC fund

Provision of CEONC services should be an integral responsibility of a district hospital. The funding arrangements should reflect that. This study has identified limitations in the CEONC fund's design and its allocation arrangements. These affect its ability to impact on systemic bottlenecks. These limitations need to be addressed along with reforms to hospital staffing, funding and management arrangements along with relations to the FHD, to ensure that CEONC services can be provided consistently and to a high standard.

The purpose of the CEONC fund also should be clarified – is it a 'top-up' fund or a financing fund for all CEONC services? If a 'top-up' fund, hospitals should themselves identify what 'top-up' funds are required and for what purposes. This would mean more local involvement in decisions about fund allocations. Hospitals may not receive all they require because of an overall shortage of funds, but they would have more involvement and hence commitment to the fund. Therefore, to what extent is local involvement to be permitted in the fund distribution arrangements? Bossert et al (2002) identified that devolving budgetary responsibility can result in improved quality, transparency, accountability, and legitimacy owing to user oversight and participation in decision making; and that there is potential for greater equity through distribution of resources toward traditionally marginal regions and groups. A decision also needs to be made as to whether the CEONC fund is to be for specific activities or is to be a general grant towards the totality of CEONC service costs.

A further question is, is the fund intended simply to support costs or to achieve specified outputs. Initially it may only be practical to develop the fund to support costs rather than outputs but an aim ultimately should be to provide funding to achieve outputs.

Is the fund for specific purposes only or used as a general fund to support locally determined CEONC service priorities? The latter would mean developing a distribution formula and such a formula would be affected by how far hospitals were staffed and financed to provide CEONC services and that would mean updating the present sanctioned posts allocation arrangements and the related budgetary provisions. If that were to occur, the fund would then need to be

focussed upon the impact of exceptions such as referrals and whether or not local funding support was available. If, however, hospitals were not staffed and financed to provide CEONC services such a formula should reflect a current staffing needs based on forecast demand for CEONC services, including referrals, and other costs such as, drugs, equipment and infrastructure needs. The aim should be to make possible 24/7 provision. A hospital (and HDC) should be able to predict the level of funding that would be available to it for at least the following year. Major changes in funding between years should be avoided.

5.10 Strengths and limits of the study

5.10.1 Strengths

Strengths of the study lie in the number and breadth of participants across clinical, public health, managerial and governance functions at both the district and central levels (a total of 39 key informants). This broad insight allows an in-depth understanding of the factors affecting the delivery of CEONC services to emerge. Given the case study approach, the generalisability of qualitative work is not possible in the statistical sense. Yet, it can be argued the multiple case study design facilitates interpretation beyond the four field sites as the number of case studies were selected in line with Eisenhardt's (1989) recommendation. This states a cross case analysis from this number of cases and the breadth of participation between clinical, public health, management is a good basis for analytical generalisation i.e. generalisation from empirical observation to theory (Gibbert, 2006) (Chapter Three). This research design was aimed at selecting hospital sites that represented a range of cases to exemplify the critical factors that were required for CEONC services to be functional 24/7. Once the sampling sets were established secondary criteria were applied which sought to select district hospitals that would give access to a wide variety of demographic and geographic features to allow conclusions to be drawn beyond the immediate implications of the geography of the study sites. Thus, case study sites were selected from 4 of the 5 regions in Nepal, two of the geographic zones were represented (hill and terai) and district hospitals represented a mix of remote and non-remote districts. The use of local researchers also was a methodological strength. For access reasons, because of the 2015 earthquakes, this enabled a wider universe from which to select the case objects. Additionally, removing language barriers from the interviews enabled more in-depth discussion and ease of observation at the

facility sites. Further, capturing data from the central level, triangulates the findings of the four case studies and facilitates the application of the findings beyond the four study sites. Generalisability of the study is also supported by the strong links to published research which also supports the validity of its findings.

5.10.2 Limitations

The limitations of the study that reflect the scope and boundaries of the research are as follows. The study used the provision of caesarean as a key indicator. Whilst this is a widely accepted proxy indicator for CEONC services, the study does not consider the provision of other CEONC services or whether they may be more clinically appropriate. The study also did not consider services provided in the private sector which may skew service provision away from public facilities – particularly for elective surgeries. However, the decision to focus purely on the public sector reflects the services accessed by most of the Nepali population, and particularly those for whom private services are financially impossible. Private hospitals also cannot benefit from CEONC funding.

The study also does not cover quality of care, but the literature review showed that the better the management of the hospital the likelihood that the quality of care would improve. So even though quality of care was not covered, improvement in the management of the CEONC services should have an impact on care quality.

Whilst the scope of the participants was broad from the perspective of those engaged in both service delivery and policy development, there was no direct patient engagement or with local community interests. This limits the study scope to fully test the perceptions of the community on the services provided by hospitals. Investigating barriers to community access to services was necessarily beyond the scope; however, this would warrant further investigation.

In Chapter Three the impact of the earthquakes was discussed in the research design. Being unable to physically reach the case study sites did require a redesign of the data collection and increased reliance on local researchers. The challenge this presented was mitigated by substantial training and discussions with each of the researchers prior to field visits, detailed discussions with each of them before, during and after the field work and the familiarity of

the author with Nepal, the context and with the field researchers. Whilst this presented challenges, it also presented opportunities on which the study capitalised (see 3.5.4). Limitations of time and resources are always an issue when completing a piece of research, and this was no exception in this study.

5.11 Future research

An improved availability of CEONC services ought ideally to be accompanied by a quality of care study (Soto, 2013). This study could be extended by including an analysis of the quality of CEONC services in both high and low performing districts. Further this study has considered the supply side barriers to provision of services. A complementary study would be an in-depth analysis of those socio-economic factors in the specific districts which drive demand for and uptake of services. Also, if policy makers are to understand how to refine the CEONC fund, and indeed any other similar funding mechanism, information should be available on how hospitals are using the resources and on what they are achieving i.e. health outcomes. Given the CEONC fund has now been expanded to all districts in Nepal, an important requirement for the FHD should be to establish hospital needs and what hospitals are doing with the resources made available to them. This could further test the CMOC identified under this study to allow for further refinement. Further research is also needed on the distribution mechanisms for the CEONC fund, but this would depend upon whether or not changes were made to the staffing and financing of hospitals and this should be coupled with clarification of objectives and the monitoring of outputs and outcomes. Such research would also be affected by how federalisation affected the delivery of health services in general and CEONC services in particular.

5.12 Conclusion

This study aimed to understand why some district hospitals achieve a better provision of CEONC services than others. A feature of this was to ascertain how the CEONC fund in Nepal impacts the availability of CEONC services and to identify other factors that contribute to service availability. The questions asked in this study concerned the financing and management arrangements for CEONC services and addressed the perceptions of both local district hospital and central officials. The motivations for studying these areas were the

expansion of the CEONC programme to all districts in Nepal and the institutionalisation of the CEONC fund as a grant mechanism in the NHSS (2015-2020). This study identified additional factors contributing to a facility either performing or non-performing as a provider of CEONC services. There has been no academic or peer reviewed study which incorporated an analysis of the CEONC fund grant mechanism and its linkages with other health service funding arrangements. This study therefore adds to the body of literature by filling this gap. Further, the study takes a novel analytical approach to the delivery of CEONC services. It recognises this is a complex problem being addressed in a highly complex environment. The recommendations are aimed at how policy makers should consider developing CEONC policy and the extent to which specific funding could aid policy development utilising the lens of complexity.

The critical factor affecting CEONC service availability 24/7 is qualified staffing continuity underpinned by management and leadership. Achieving this requires an updating of hospital staffing and financing coupled with clarity about the purpose of the CEONC fund and then consistency and predictability. This study demonstrates that whilst improvements can be made to improve the effectiveness of the CEONC fund as a single intervention, substantive improvement depends upon the reform of other factors affecting the provision of CEONC services and not just reform to the CEONC fund distribution arrangements.

In summary, not only is a CEONC fund grant alone insufficient to ensure 24/7 service availability, several other critical factors are important to ensure that CEONC services are consistently and universally available. Ultimately the CEONC fund is a functional fix to issues that have a systemic cause. Currently distribution is not based on objective factors nor is there any local input into needs assessments. Distribution over time is inconsistent and restrictions on utilisation vary. Distribution is also not linked to the achievement of objectives nor does any accountability assessment exist to establish whether or not those objectives have been achieved. CEONC service availability is heavily influenced by the quality of leadership and management of the hospitals and its capacity to maintain or develop the service as financial resources permit. The fund's utility as a single mechanism to improve CEONC services is therefore limited.

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Appendix 1: Direct Observation Guide

Guide for direct observation of district participants including organisational culture, behaviours and environmental conditions during field visits.

Purpose: to help triangulate the data collection from the interviews and to be able to reflect any circumstances witnessed that might not be represented in the interviews.

We'll achieve this through formal **field notes and research diary**

Try to keep in mind the conceptual framework and to observe any interactions within the facility that appear relevant to the framework and helping us answer the overall research question i.e. Is the CEONC fund alone an effective mechanism for increasing availability of CEONC services in district hospitals?

Conceptual model

Staffing and qualifications	Availability and quality of Equipment / Supplies	In-service training, supervision and teamwork	Managerial style, monitoring and leadership	Financial Oversight
<ul style="list-style-type: none"> • Staffing • Qualifications • Human Resource Management 	<ul style="list-style-type: none"> • Quality of CEONC Equipment and Supplies • Infrastructure • Procurement 	<ul style="list-style-type: none"> • Induction of new staff • In-service training of medical staff • Supervision • Teamwork and staff attitudes 	<ul style="list-style-type: none"> • Leadership • Managerial support and team building • Interaction and communication • Target setting and monitoring of performance • Awareness of progress • Perception of their role • Relationship with MoHP/FHD • Relationship with local community • Oversight by Hospital Development Committee 	<ul style="list-style-type: none"> • Budgeting • Financial management • Financial Reporting • Independent auditing

Things to look out for.....

- Observe formal staff meetings (if they take place). Note interactions between senior and junior staff members – e.g. how (if at all) do junior members of staff able to express opinions – put forward ideas in formal meeting settings.
- Observe informal interactions between staff – e.g. between the DPHO and the Hospital in-charge. How do they behave towards each other?
- Note conditions within the facility – e.g. motivated / unmotivated staff; sufficient / insufficient resources
- Observe any formal training (if any going on). What is their nature e.g. participatory, skills based etc.?

- Observe any informal training – e.g. on the ward through ongoing mentoring of junior staff
- Observe any meetings taking place which involve financial decision making. Note the nature of the involvement of finance officers – e.g. are they active participants in decision making, providing advice or do they simply report the figures.

Structure of **field notes** (see how to take field notes document)

1. Date, time, and place of observation
2. Specific facts, numbers, details of what happens at the site
3. Sensory impressions: sights, sounds, textures, smells, taste
4. Personal responses to the fact of recording fieldnotes
5. Specific words, phrases, summaries of conversations, and insider language
6. Questions about people or behaviours at the site for future investigation
7. Page numbers to help keep observations in order

This will be complemented by taking **a research diary** which is an opportunity to reflect on your own personal feelings of the research site which might influence the research.

Reason for doing a diary: The research diary provides a form through which the interaction of subjective and objective aspects of doing research can be openly acknowledged and brought into a productive relationship. The field notes may be more objective and the research diary an opportunity to reflect on this from a more subjective perspective and bringing your own thoughts and prior experience to bear – this is one way as well that we'll be able to acknowledge any potential bias that might influence results. The research diary can be seen as a melting pot for all of the different ingredients of a research project - prior experience, observations, readings, ideas - and a means of capturing the resulting interplay of elements.

Appendix 2: Semi Structured Interview Tool

Section 1: Introduction

What are the things that you think effect availability of CEONC services at this hospital?

Probe: positive impact; negative impact

Section 2: Case-load, staffing and training

How are CEONC staff managed at this hospital?

Probe: Who oversees the management of CEONC services – individual or group, what approach do they take? Who makes decisions about staffing levels?

Probe: How many emergency cases are seen in a day / month?

What staff are regularly available for CEONC services?

Probe: obstetrician, skilled birth attendants, nurses, etc.; what staffing levels would enable them to deliver more services (are current levels sufficient)

Probe: How often do new staff join the team?

Probe: What formal training do staff have prior to working in the obstetric unit?

Section 3: Availability of Equipment / supplies

What changes in equipment / supplies / infrastructure would help you deliver more CEONC services?

Probe: What equipment do you have to perform CEONC services? What else would be beneficial?

Probe: if you needed to perform a c-section today, what would you need to have in place?

Section 4: In-service training, supervision and teamwork

Why do they think there are lots of / few c-sections at this hospital? (depending on sampling)

Probe: Describe how the team work together to provide CEONC services?

Probe: What happens when a new obstetric staff member joins the team – talk me through the process of them becoming part of the team. Who manages this process?

Probe: How much in-service training do staff receive?

Probe: How is this organised? Who organises it? Who receives training (e.g. just clinical staff or others as well?)

Probe: Who supervises staff providing CEONC services? How often does this happen? What mechanisms are used? (e.g. audit)

Section 5: Management style, monitoring and leadership

What do they see as their role in managing CEONC services in the hospital?

Probe: What guidelines do staff follow in delivery of CEONC services? What do they know about ideal levels of CEONC service provision?

Probe: How do staff and managers communicate? What more / less would they like to see?

Probe: What happens if a staff member isn't performing or is regularly absent?

How would they describe the leadership on CEONC services in the hospital?

Probe: What are the attitudes of the hospital managers towards CEONC services?

Probe: do they prioritise them? What are their other priorities? How do they support team building?

Probe: How motivated are the CEONC team to provide services?

How is the MoHP involved in supporting the delivery of CEONC services in the hospital?

How is the local community involved in supporting the delivery of CEONC services in the hospital?

Section 6: Financial oversight.

What is the process for budgeting for CEONC services?

Probe: what communications do they have with the MoHP? Who makes decisions on how money is spent?

Probe: How do they manage their finances during the year?

Probe: what happens if they don't have enough money; what happens if money isn't timely from the MoHP; when do they receive the CEONC fund money

What do they use the CEONC fund money for?

Probe: How would they like the fund to be allocated? What more could they do with the money?

Probe: How and how often do they report on finances and who to?

Probe: How are accounts independently verified? How often?

Section 7: Close

Is there anything else they'd like to add about CEONC service availability at the hospital?

Appendix 3: Participant Information Sheet

Project Title: " Why do some district hospitals in Nepal achieve better provision of comprehensive emergency obstetric and neonatal care than others? A study of the funding, systems and structures that influence the availability of CEONC services."

Project context: Nepal has seen a significant decline in maternal mortality since 1990. To reduce the Maternal Mortality Ratio to the Millennium Development Goal target of 134 per 100,000 live births by 2015 further action is required. As one response to achieve this, in 2008/9, the Government of Nepal developed a policy, providing service specific funds directly to district hospitals in low human development index districts (i.e. 36 districts out of 75), purely for Comprehensive Emergency Obstetric and Neonatal Care (CEONC) services. The intention has been that this "CEONC fund" should only be used for this, and not for any other hospital, purpose with the aim of helping district hospitals identify their local needs and acquire the appropriate resources to provide the full range of CEONC services. As a policy mechanism, the fund was initially a 'quick fix': now the fund is being viewed as a longer term policy. The government wants to increase its utilisation and extend its application to more districts hospitals. However, routine data on fund utilisation is limited. What is available indicates that utilisation of allotted funds varies substantially by district hospital (from 12% to over 90% of allocated funding) and service data also shows that the actual provision of CEONC services continues to vary widely.

The purpose and value of the study: There has been very little research on the uptake and effect of the fund on CEONC availability and why variation might exist. This study will fill this gap by reviewing how the fund operates in practice and what other factors might impact the uptake of funding and availability of CEONC services. Employing a multiple case study design, looking in-depth at four district hospitals, this research will analyse how the district hospital respond to offers of funding and the availability of these services with the aim of identifying the reasons for variations. From this, recommendations will be developed for changes to government policies to support increased availability of CEONC services.

The particulars of the study are as follows:

- The project is aimed at making an analysis of the availability of CEONC services at District Hospitals. For this purpose, semi-structured interviews will be conducted with key informants. Potential participants have been invited to take part because they are key members of staff from the District Hospital, the Ministry of Health and Population and NGOs working with the government in the delivery of CEONC services
- The study has received ethical clearance from the Nepal Health Research Council and the Research Ethics Approval Committee for Health of the University of Bath in the United Kingdom
- Potential participants can ask questions about the study before they decide whether to participate
- The study will consist of observation of activities within the obstetric ward of the district hospital and semi structured interviews which will last for about one - two hours and will be held within

the District Hospital or other convenient location for the interviewee. Questions will deal with the management of CEONC services at district and central level.

- At any time, participants can refuse to answer certain questions, discuss certain topics or even put an end to the interview without prejudice to themselves or to the hospital.
- Participants can withdraw from the project at any time up to the point that data analysis has begun by advising the researchers of this decision.
- No direct benefits will be provided to participants. Indirect benefits will include opportunities to contribute to improved delivery of CEONC services at the District Hospital and improved utilisation of the CEONC fund. There are no risks involved in the study
- To facilitate the interviewer's job, the interview will be recorded and understand that this recording will also be transcribed. If this is agreed to by the participant.
- This study is a case study which means that it may be difficult to exclude data that identifies the specific district hospital.
- All interview data will be handled so as to protect confidentiality as far as possible. Therefore, no names will be mentioned and the information will be coded to protect anonymity.

Data Protection

- Any personal data will be destroyed at the end of the project.
- During the project data will be anonymised and kept on a password protected laptop and USB with access only by the research team.
- After the study anonymised project data will be kept in a password protected area on the server of the Nepal Health Sector Support Programme (NHSSP)

Sarah Hepworth is a Professional Doctorate Student at the University of Bath in the United Kingdom and Assistant Director of Programmes at Options Consultancy Services who deliver the Nepal Health Sector Support Programme. She is principal researcher of this study.

Suresh Mehata is Research Associate for the Nepal Health Sector Support Programme and will support the study.

For any information about the project, contact Sarah Hepworth on seh45@bath.ac.uk or s.hepworth@options.co.uk or Suresh Mehata on Suresh@nhssp.org.np.

Appendix 4: Ethical Approval

From: Rachael Yates <R.M.Yates@bath.ac.uk>

Sent: 20 March 2015 11:54

To: Sarah Hepworth

Subject: REACH Feedback - Sarah Hepworth

Dear Sarah,

Full title of study: Why do some district hospitals in Nepal achieve better provision of comprehensive emergency obstetric and neonatal care (CEONC) than others? A study of the funding, systems and structures that influence the availability of CEONC services.

REACH reference number: EP 14/15 135

The Research Ethics Approval Committee for Health (REACH) reviewed the the above application at its meeting held on the 18th March 2015.

On behalf of the Committee, I am pleased to confirm that the Committee would be happy to provide a favourable ethical opinion of the above research, (on the basis described in the application form and supporting documentation). The Committee noted that it was unclear upon what criteria the 4 district hospitals were being selected, or whether this was at random.

Please inform REACH about any substantial amendments made to the study if they have ethical implications.

Kind regards

Rachael Yates
Department Co-ordinator

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Nepal Health Research Council

Estd. 1991

Ref. No.: 1906

20 April 2015

Ms. Sarah Elizabeth Hepworth

Principal Investigator

University of Bath, UK

Ref: **Approval of Research Proposal** entitled **A study into how the funding arrangements, systems and structures influence provision of CEONC services within District Hospital in Nepal**

Dear Ms. Hepworth,

It is my pleasure to inform you that the above-mentioned proposal submitted on 06 March 2015 (**Reg. no. 35/2015** please use this Reg. No. during further correspondence) has been approved by NHRC Ethical Review Board on 01 April 2015 (2071- 12-18).

As per NHRC rules and regulations, the investigator has to strictly follow the protocol stipulated in the proposal. Any change in objective(s), problem statement, research question or hypothesis, methodology, implementation procedure, data management and budget that may be necessary in course of the implementation of the research proposal can only be made so and implemented after prior approval from this council. Thus, it is compulsory to submit the detail of such changes intended or desired with justification prior to actual change in the protocol.

If the researcher requires transfer of the bio samples to other countries, the investigator should apply to the NHRC for the permission.

Further, the researchers are directed to strictly abide by the National Ethical Guidelines published by NHRC during the implementation of their research proposal and submit progress report and full or summary report upon completion.

As per your research proposal, the total research amount is **US\$ 7,000.00** and accordingly the processing fee amounts to **US\$. 100.00**. It is acknowledged that the above-mentioned processing fee has been received at NHRC.

If you have any questions, please contact the Ethical Review M & E section of NHRC.

Thanking you.

.....
Dr. Khem Bahadur Karki

Member-Secretary

Tel: +977-1-4254220, 4227460, Fax: +977-1-4262469, Ramshah Path, P.O. Box 7626, Kathmandu, Nepal.

Website: <http://www.nhrc.org.np>, Email : nhrc@nhrc.org.np

Appendix 5: Case Study Sample Universe

The below table shows the 32 districts disaggregated by allocation of the fund and percentage of caesareans and includes additional geographical information. The final districts selected are shaded in grey in the table.

Hospital and district	Earthquake affected	Region	Province	Ecological Zone	2013-14 CEONC Fund Allocation NPR (000)	No. of caesareans	Total deliveries	% of deliveries by caesarean
Low caesarean rate; Low fund								
Bhim Hospital, Rupandehi		Western	5	terai	900	No data	No data	No data
District Hospital Sindhupalchowk	X	Central	3	mountain	900	0	210	0.00%
District Hospital, Syangja		Western	4	hill	900	0	399	0.00%
Tikapur Hospital, Kailali		Far Western	7	terai	1000	7	1459	0.48%
District Hospital, Dhankuta		Eastern	1	hill	900	3	288	1.04%
Kalaiya District Hospital Bara		Central	2	terai	1900	52	2482	2.10%
District Hospital Dhading	X	Central	3	hill	900	14	600	2.33%
Prithiv Chandra Hospital, Nawalparasi		Western	5	terai	900	23	979	2.35%
District Hospital, Taplejung		Eastern	1	mountain	1200	15	376	3.99%
Trisuli Hospital Nuwakot	X	Central	3	hill	900	70	1482	4.72%
Low caesarean rate; High fund,								
Malangawa District Hospital Sarlahi		Central	2	terai	2400	0	1032	0.00%
Damauli District Hospital, Tanahun		Western	4	hill	2400	0	0	0.00%
District Hospital, Rolpa		Mid Western	5	hill	2400	0	114	0.00%
District Hospital, Arghakhanchi		Western	5	hill	2800	4	583	0.69%
Gaur Hospital Rautahat		Central	2	terai	2300	30	1775	1.69%
District Hospital, Bajura		Far Western	7	mountain	3000	3	165	1.82%
District Hospital, Mugu		Mid Western	6	mountain	2500	5	243	2.06%
District Hospital, Terhathum		Eastern	1	hill	2400	8	247	3.24%
District Hospital, Rukum		Mid Western	Half to province 6	Hill and mountain	4000	15	449	3.34%

			and half to province 5					
Lahan Hospital, Siraha		Eastern	1	terai	2400	103	2106	4.89%
High caesarean rate; Low fund								
District Hospital, Dailekh		Mid Western	4	hill	1000	24	433	5.54%
District Hospital, Baitadi		Far Western	7	hill	1000	21	314	6.69%
Makwanpur District Hospital	X	Central	3	hill	1200	132	1455	9.07%
District Hospital, Gorkha	X	Western	4	hill	1500	128	1075	11.91%
District Hospital, Panchathar		Eastern	1	hill	1200	97	769	12.61%
High caesarean rate; High Fund,								
District Hospital, Achham		Far Western	7	hill	3000	29	318	9.12%
District Hospital, Udayapur		Eastern	1	hill	2400	195	1334	14.62%
District Hospital, Khotang		Eastern	1	hill	2900	50	342	14.62%
District Hospital, Bhojpur		Eastern	1	hill	3200	54	298	18.12%
District Hospital, Sankhuwasabha		Eastern	1	mountain	2900	24	130	18.46%
District Hospital, Ilam		Eastern	1	hill	2900	167	833	20.05%
District Hospital Solukhumbu		Eastern	1	mountain	2900	39	175	22.29%

Map of Nepal post federalism with new provinces and districts



Appendix 6: Case Study Descriptions and Central Level Interviews

Introduction

This appendix provides the rich descriptions of the individual case studies and the central level interviews. It draws on archival data, semi-structured interviews and field observations as well as desk based research on the context of each district. The structure of each case study broadly follows the same format, although depending on the findings there is variation in the reporting against the theoretical framework and breadth and depth of the results. The case studies are divided into two parts. Firstly, a description of the operational environment of the health facility. This enabled understanding of the variety of factors that influence how the hospital operates and the relationship it holds with the District Health Office (DHO) or District Public Health Office (DPHO) (see Appendix 7 for a description of the health system in Nepal). The theoretical framework was used to analyse the data and key systemic and local enablers and barriers were identified. Additional factors identified through the case study research as influencing availability of CEONC services are also presented, as are the results from the central level interviews.

Nawalparasi

The hospital was categorised, through the sampling process, as having a low percentage of caesareans (2.35% of deliveries within the facility) and in receipt of a low CEONC fund grant (900,000NPR) for the year 2013/14.

Operational environment

Nawalparasi is a Western Region district. Geographically in the terai it borders India. Several industries are located here including production of sugar, cement and paper (MoFALD, 2015). The district is populated by a variety of different castes the largest of which is Muslim (22.09%) followed by Magar (17.21%), Brahman Hill (16.86%) and Tharu (16.48%) (MoFALD, 2015). The Human Poverty Index⁹ (HPI) for Nawalparasi is 27.99, better than the national average for Nepal which is 31.12. The district falls within the top half of all 75 districts for most other development indicators e.g. adult literacy rates and access to safe water (UNDP, 2014). The district headquarters and location of the District Hospital is Parasi. The district was not severely impacted by the 2015 earthquakes, however, it was the location of several violent protests during the blockade of the Nepal–India border in 2015.

In 2015 the district hospital had 25 beds and was integrated with the DHO. The main hospital building is 5 years old. The maternity ward, labour room, post-operative ward and the operating theatre (OT) are housed in an old building. The hospital had 9 maternity and 5 post-natal beds along with all requisite infrastructure (functional toilets, running water and

⁹ The **Human Poverty Index** (HPI) was an indication of the standard of living in a country, developed by the UN (UNDP, 2014)

electricity with generator back-up). Residential facilities were also available for the doctors and nurses.

Results against the theoretical framework.

Staffing and qualifications

Staffing

The hospital has not been allocated the sanctioned posts to enable it to provide CEONC services and therefore its only financing source is through the CEONC fund. Three staff, a caesarean trained doctor, a nurse and an auxiliary nurse midwife, were employed on short term contracts to deliver CEONC services. Additional ad-hoc support was provided by the Medical Superintendent (MeSu) of the hospital (a sanctioned post) who was experienced in delivering CEONC services. This level of staffing is inadequate to provide 24/7 cover. There are particular shortages of auxiliary nurse midwives, staff nurses and paediatricians. The lack of a paediatrician meant neonatal cases had to be referred to other health facilities. The lack of an anaesthetist adversely affects the surgical teams who undertake caesarean.

“When there was an anaesthetic assistant, I could manage my time well. But since I have to do it all on my own now, this has affected my work directly and indirectly.” (MS4)

In emergencies, health assistants trained in anaesthetics employed in private sector facilities could be utilised although this was not regarded as a desirable practice.

Qualifications

In Nawalparasi, only trained and experienced staff are employed on the CEONC team e.g. staff nurses should have passed a staff nurse national health training centre (NHTC) course and doctors, should have a bachelor degree in medicine and surgery (MBBS) plus additional skilled birth attendant (SBA) training.

Human resource management arrangements

Some vacancies within the hospital arose from ad hoc (and badly planned) transfers of sanctioned staff by the MoHP. For example, the anaesthetist assistant (AA) position became vacant as he was transferred in 2013 to a local health post (where anaesthetist skills were not required) without consultation and not replaced. The local market for suitably trained anaesthetists is poor and as a result this position has been vacant for a year.

“For three years, we had an anaesthetic assistant in the hospital itself, but he has been transferred from here to a nearby health post. No one has applied for the position although we had put out an ad about this. We have needed an anaesthetic assistant for the last year.” (MS4)

The DHO is responsible for the recruitment of CEONC contracted staff. The DHO adheres to the requirements of PSC appointments. This process takes several weeks which delays appointments. This delay is added to if, as there frequently is, a delay in the release of the CEONC grants from the MoHP. For example, in FY 2014/15 the recruitment process could only commence 5 months after the start of the FY.

The delayed budget release also leads to staff only being contracted for short periods of time. In FY2014/15, this meant that CEONC staff in Nawalparasi could only be employed for

between 3 and 6 months leaving a gap of 6 months at the beginning of the FY when no staff were available. Apart from the impact on service provision, this was a barrier to recruitment as the local team found very few candidates want to apply for such short-term positions. It also causes an inefficient use of resources as the DHO had less negotiating power when the contracting period was so limited. Overall, the short-term nature of contracts was seen as a major barrier to the provision of continuous CEONC services

“When CEONC grant is there, we can provide services for 2-4 months and when the project is not there, we can't offer services. It would be nice to provide services round the year and forever.”
(MS2)

Availability and quality of equipment and supplies

Quality of CEONC equipment and supplies

Appropriate medicines are available for CEONC services from hospital resources and blood supplies are managed locally by the Red Cross. The maternity beds were of good quality, however, there was limited other CEONC equipment and what was available was 10 years old (FO). The hospital only has two sets of surgical tools and instruments. This has not, as yet, prevented the hospital undertaking caesareans, but it does mean that overall, the equipment has to be very carefully managed and can mean a delay for some patients. A third set would be preferable and if service provision did increase to 24/7 year-round more and better equipment would be required.

“In circumstances where we have two cases, we will have used both the sets for operations and it would be difficult for us to sterilise them during this rainy season to serve a third case” (MS2)

Neonatal care equipment is a key deficiency and this lack has caused some patients to be referred to other facilities.

“Referrals were made for lack of NICU¹⁰ and for the safety of the child.” (PHO1)

Infrastructure

Poor infrastructure for CEONC services is a serious problem with no separate CEONC unit, waiting room or store room, no NICU and the OT room is congested. This affects the quality and efficiency of services as normal delivery, vacuum delivery and caesarean cases all take place in the same location.

Procurement processes

Delayed procurement and insufficient supplies of CEONC equipment were also a key issue in Nawalparasi. The district is reliant on donor agencies and non-governmental organisations (NGOs) to provide birthing equipment and even then much of this equipment is used for services other than CEONC.

The routine budget for equipment is held centrally by the FHD, not by the DHO or the hospital and substantial procurement delays occur.

“We place the demand but it might take six months or even a year to get them delivered.” (HM2)

¹⁰ NICU - neonatal intensive care unit - an intensive care unit specializing in the care of ill or premature newborn infants.

A further complication over procurement is that in 2014/15 CEONC fund finance was only allocated for salaries, not for funding for equipment and supplies, therefore they were reliant on the routine budget for procurement and subject to the delays noted above.

In-service training, supervision and teamwork

Induction of new staff

No induction processes for new medical staff occur which has resulted in patient referrals as staff were unclear on processes and procedures.

“I enquired about the reason behind referring the patient to Butwal. He clarified that the MeSu had not handed over necessary equipment, phone numbers of responsible staff members were not given to him and his Terms of Reference was not clear.” (HM2)

In-service training

In-service training has been relatively limited. Funds for this are not available through the CEONC fund and there is a reliance on the NHTC to provide trainings. NHTC training is restricted to sanctioned staff so those appointed on a contractual basis cannot access courses. This discourages applicants from applying for contracted posts.

“You are well paid but there are no other incentives like training opportunities. This is discouraging. Next time, I won't apply for CEONC.” (MS3)

In Nawalparasi only one staff member had received formal OT training and reliance was placed upon more experienced staff to provide training.

“.....only one of our staff members has received training on OT. But I have provided guidance to the sisters (staff nurse) on how to scrub and do other necessary things from the very beginning. Therefore, I think all our staff nurses are capable of working in caesarean teams” (MS4).

Supervision

Supervision of CEONC services was provided by the MeSu. The perception of the MeSu is generally good. However, there is no formal HR management process. Consequently, poor performance is not penalised and good performance is not recognised.

“There has been no such performance management arrangement so far. I think that should have happened.” (PHO1)

Teamwork and staff attitudes

Good teamwork existed. An emphasis was placed on developing a team spirit between the clinical and management leadership of the hospital and a strong relationship existed between the DHO and the MeSu.

“A spirit of teamwork is essential for cooperative work, they should be able to work with a feeling of team spirit.” (PHO2)

Interviewees explained that in the past there had been challenges in creating a team atmosphere as contract staff and sanctioned staff would only focus on their specific areas of responsibility. Mutual cooperation between nurses and doctors or between the contracted CEONC and other regular hospital teams, such as OT staff did not exist. The current MeSu

placed a strong focus on team building between contracted staff and sanctioned staff providing regular obstetric or surgical services.

“All are active. We all collaborate to respond to any case. For example, I work for CEONC but I never say that I work only for CEONC. Suppose we have a caesarean case and they have a delivery case. If they complete the delivery case first, they will come to support us and if we complete our case first, we will go to assist them. Staff members from both sides are supportive.” (MS2)

Managerial style, monitoring and leadership

Interaction and communication

There were mixed reports on interaction and communications in the hospital. Some interviewees reported open communications and a supportive environment between the medical staff and the management of the hospital. Others noted that there was rarely communication between them and whilst there was opportunity to discuss clinical matters, there was no place to talk about more personal issues. Formal meetings were irregular and infrequent.

“things are not taking place in a step-wise manner as you think. In principle, meetings should be held every month but this has not happened.” PHO1

Target setting and monitoring of performance

No clear targets were set for CEONC service provision. However, a view was that during the months the services were operational, they were adequate for the needs of the community.

“In my opinion, seven or eight cases a month are so-so. I think it is satisfactory. We offer the patients alternatives. If we were hell-bent on increasing the number of caesarean cases only, we would talk the patients into accepting our services by hook or by crook. But our purpose is not increasing numbers; our purpose is satisfaction of the patient party. We brief them about the alternatives also. If the patients are satisfied with our work, I don't think there will be any need of increasing the number.” (MS4)

Monitoring of clinical CEONC performance is undertaken by the MeSu. Administrative arrangements are provided and managed by the DHO. The DHO also monitors progress on caesarean cases.

“When there are more referral cases, we try to look for the reasons behind it. If a pregnant woman comes seeking health services and fails to appear second or third time, we should try to find out the reasons behind it.” (PHO1)

There is no specific monitoring of the CEONC service provision by the FHD. Basic data appears to be unreliable. For example, there is a discrepancy between the number of caesarean reported to the HMIS and the number reported in the DoHS annual report. Whilst this comparison is only available for 2013/14, it indicates a possible weakness in the recording of services that could provide a challenge to the setting of targets and the monitoring of progress.

Awareness of progress

There was a perception that numbers of patients had increased because of the introduction of the CEONC programme. An estimate was 7-8 caesarean being undertaken each month was

given. However, the potential weakness in the published service data (noted above) makes this perception of progress hard to verify.

Perception of their role

Staff had a clear perception of their roles and responsibilities in the provision and management of CEONC services. The MeSu provided clinical leadership and supervision; the DHO oversaw recruitment and management of staff as well as service monitoring. The HDC role was to ensure that the hospital operated efficiently, including in the provision of CEONC services.

Leadership

Leadership was good with the MeSu, DHO and HDC all supporting CEONC services. The MeSu in particular seemed very dedicated and was a key factor in the in the development of CEONC services despite all the difficulties.

“It is because of Dr _____ also. He has made a significant contribution to make caesarean service a success.” (MS1)

However, some key processes which are not in place in Nawalparasi, such as induction, performance management, formal mechanisms for staff communications and formal monitoring. This would indicate that whilst the leadership team is supportive, in practical terms they lack core management skills and tools.

Managerial support and team building

Whilst there is active clinical support from the MeSu and administrative support from the DHO there are management deficiencies, as indicated above and these can have an impact on the continuous delivery of services.

“Our system management is not up to mark. We need to make changes in it. If we make changes to our management, CEONC activities will never be stopped.” (PHO2)

This is in addition to the funding and HR problems previously referred to.

Relationship with the FHD

A poor relationship exists with the FHD. There was limited oversight and monitoring of both the CEONC fund finances and the delivery of CEONC services from the FHD. The FHD’s CEONC mentor has only visited once.

“There is nothing like monitoring from the district. Dr _____ [FHD CEONC mentor] had come here once in the course of four years. This apart, I don’t think any agency or any person has come here for monitoring.” (MS4)

Relationship with the community

The lack of consistency in the availability of services has reduced trust in not only obstetric services, but also other hospital services (including potentially income generating services). As a result the community may choose to travel to other districts. Views expressed included that it would be better not to provide CEONC services at all than provide them for only a short period of time.

“It greatly hampers other services also. If this is the situation, there is no trust of people on the organisation. Clients think that if the organisation is providing services just for a couple of months or so, why go there? People need quality services without loss of time, in a quick way. So, it is natural for them to choose other places and this may put our performance in negative light.” (PHO2)

Another problem is that deficiencies in service provision and the need to refer patients to other hospitals has resulted in situations where the community has become violent towards the staff. There was a perception that the community lacked trust in the hospital, particularly after an adverse event where an infant died. This drove down the number of clients seeking services.

“After I came here, we used to perform 140-150 deliveries a month but following the incident [an infant death], the number has reduced to a mere 70-80.” (MS4)

Oversight by HDC

The HDC in Nawalparasi has the responsibility for streamlining administrative arrangements, ensuring better planning, improving hospital performance and HR management. Active support for CEONC services, including responding to community challenges, is provided by the chair of the HDC. However, the HDC lacks independent sources of funding to supplement the CEONC fund allocation and to ameliorate the problems caused by late payment.

“Reforms may have been made in other areas but not in the sphere of human resources. It is because the hospital development committee lacks fund. If there is no money in the committee's account, how could things happen? For example, it is very difficult to appoint doctors and paramedics.” (PHO2).

Financial oversight

Budgeting

There is no opportunity for the hospital, the DHO or HDC to influence how the CEONC grant is allocated. The FHD does not discuss with these bodies what the allocation should be and for what purposes. The financing problems are compounded because there is significant fluctuation in the grant allocated from year to year (the grant doubled between FY 2013/14 and 2014/15). This causes confusion at district level and inhibits planning.

“We don't have any idea at all how much budget is released, how it is described in the red book, which donor agency is involved, etc. As we don't receive clear information, confusion is created. The planning for the CEONC program is done by the centre.” (PHO2)

“We know the figures only after we have received the budget. We don't know them prior to that.” (HM1)

The CEONC grant represents only a small proportion of the overall hospital budget. Whilst the fund is nominally flexible, in practice the guidelines limit how it can be spent. Consultation with local health organisations would facilitate planning and management.

“A CEONC budget is determined by the centre and the District Health Office receives authorization to make expenditures. We spend the money under the same headings as we are told to. We should provide salaries to doctors, nurses and other employees. Similarly, we should

purchase necessary tools, equipment and machines. Some money goes to medicines, while some is allocated for miscellaneous purpose, as per the headings. All this is done as instructed by the Centre.....If the district is allowed to design budget to make purchases accordingly, it would be much better.” (PHO2, 2015)

Financial management of CEONC Fund

Financial management of the fund is seen by the clinical staff as the responsibility of the DHO. Spending has to remain within the given framework and whilst minor changes are possible if salaries, allowances or other essential expenses are inadequate, there is little scope for significant flexibility. If any budget lines have inadequate funds, the spending plan is moved to the following year and that requires approval from the MoHP and that is difficult to obtain.

The critical issue for financial management is caused by delay in the receipt of funds and then trying to spend them within the remaining part of the FY. Failure to spend them is likely to lead to the following year allocation being cut. In FY 2014/15 the actual budget release did not occur until after November. As a result, the service was unavailable between July and, at least, November. Other funding sources are not available (e.g. HDC generated funds) at this hospital. The CEONC service therefore becomes entirely reliant either on sanctioned staff (for which there is inadequate staffing) or on staff to work on a volunteer unpaid basis.

Instability in CEONC funding from year to year adds to the financial management problems. The funding for Nawalparasi over the last 2 years varied as follows and is compared with reported spending as the table below shows:

Financial Reporting from Nawalparasi 2013 - 2015

Financial Year	CEONC Grant NPR (000)	Amount spent (000s)	
		Reported to FHD	Reported in TABUCS
2013/14	900,000	0	2,254,000
2014/15	1,800,000	0	1,545,000

Financial reporting

The above table also shows that financial reports through TABUCS and the CEONC financial monitoring tool demonstrate inconsistency and this consequently raises a question over the robustness of the financial management and financial reporting arrangements. There was apparently significant overspend against the CEONC grant in 2013/14. The reasons for this overspend are unclear, or whether it actually occurred. The lack of financial reporting to the FHD means that expenditure cannot be tracked by the FHD over the year and then used to facilitate future budgeting or to measure efficiency in the use of resources compared to service outputs.

Auditing

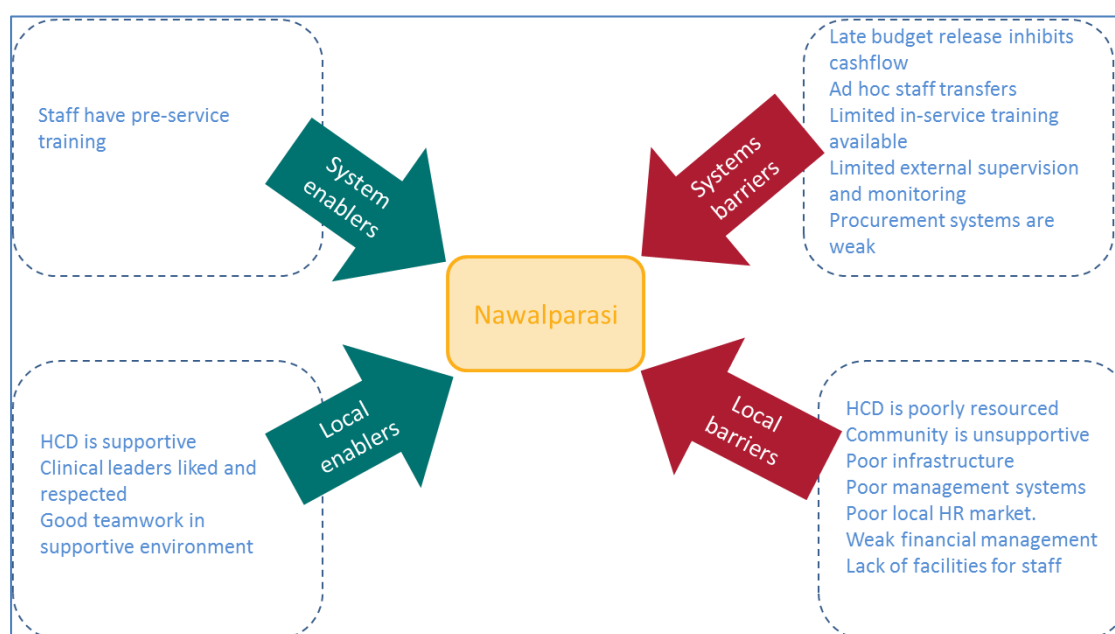
Both internal and external audits occur. The auditors focus on spending and comparisons with central allocations. They do not take into account factors such as delay in the release of funds from the centre.

“Budget is not released in time. If it is released at all, it is released at the eleventh hour. And, when the accounts get audited, auditors catch hold of us why the money is not spent as expected and if it is spent, why the money is spent.” (PHO2)

Summary

The figure below summarises the key systemic and local barriers and enablers to the delivery of health services in Nawalparasi identified through the case study. This demonstrates the imbalance between barriers and enablers, and the complex interface between systemic and local barriers and enablers.

Enablers and practical barriers to service delivery in Nawalparasi.



CEONC services provided in Nawalparasi are below optimum. Continuity of services is inhibited by interconnected and interdependent systemic and local barriers. Most critically, the lack of an adequate number of sanctioned posts at the hospital to be able to provide services 24/7 by permanent staff. The CEONC fund cannot fill this gap because of late grant disbursements and contract staff cannot be appointed for a full year. In addition, whilst the HDC is supportive of CEONC services (a local enabler and adaptive agent), the HDC does not have any independent sources of income that enable them to cover any breaks in funding and maintain a full complement of staff. Intermittent services are a deterrent to the community to seek care at the hospital. The process of planning and managing the CEONC grant is directed entirely by the FHD and there is minimal engagement with the centre so that the FHD adequately understands the needs of the hospital. As a result the grant is not directed towards the inputs that might have the best outcomes, such as in-service training and adequate equipment. Weaknesses in service and financial data together with uncertainty about the available level of finance from year to year make management, planning and monitoring difficult. The commitment of the leadership and a positive team environment are insufficient to balance out these fundamental challenges.

Rukum

Rukum hospital has a low percentage of caesareans (3.34% of hospital deliveries) and was in receipt of a high CEONC fund grant (4,000,000NPR) for the year 2013/14.

Operational environment

Rukum is a remote district in the Mid-Western Region. Geographically it is in the Hill zone, although it does have some mountainous regions. Rukum is one of four hill districts classified as remote in the Civil Service Act (1993)¹¹. The major occupation is agriculture. Its district headquarters is Muskikot where the hospital is located. The largest caste/ethnic group are the Chhetris (64%) followed by Janajatis (24%), Dalits (7%) and Brahmins (5%) (UNFCO, 2013). The HPI for Rukum is 39.02, poorer than the national average; the district ranks 55th out of 75 districts on HPI and was identified as one of the 23 lowest performing districts on development in the Nepal Country Analysis 2011 (UNRCHCO, 2016). Rukum was not affected by the earthquakes in 2015.

Rukum hospital is currently officially a 15-bed hospital (although it runs 25-28 beds for several months of the year) and is integrated with the DHO. Due to the remoteness of the district, patients sometimes have to walk several days to reach the facility. In FY 2014/15 the facility provided a range of services such as emergency services; video x-ray service; ultrasonogram, birth centre and minor operation services (DoHS, 2016a).

Results against the theoretical framework.

Staffing and qualifications

Staffing

The hospital budget includes no sanctioned posts for the delivery of CEONC services and therefore the only funding source is the CEONC fund. Staffing levels are locally perceived to be inadequate to deliver a continuous CEONC service. The CEONC team included one doctor, two OT trained nurses, one AA and one lab assistant. The doctor is able to perform caesarean operations but if he is absent cases are referred elsewhere and no CEONC service is available.

“cases were referred some times when I was alone, with no support staff; and sometimes when I was absent. We do not do elective cases here. We do only very needy cases.....We did 29 cases of caesarean last year; about 10 cases were referred out.”(MS7)

The suggested ideal staffing is one surgeon, one assistant doctor, two OT nurses, one AA; and if possible one paediatrician, or at least one nurse who is trained on neonatal resuscitation. To assist the CEONC team, the public health nurse (PHN), a sanctioned post, has provided support even though this is outside of her official role. Similarly, before the arrival of the AA, the doctor was managing both anaesthetics and surgery.

¹¹ Classification of remoteness is based on several factors including poor road network which are frequently blocked by landslides and a sparse and scattered population (Regmi et al, 2013).

Qualifications

Contracted staff are drawn from the local market for clinical staff. But this is limited. Potential recruits are new nursing graduates but they lack experience and knowledge of CEONC services. A recently appointed AA was a new inexperienced graduate.

The inability to recruit trained OT nurses caused a particular problem in delivery of caesarean and services have reduced as a result.

“It is difficult to get skilled manpower from the local level for the CEONC program. There are fresh graduated nurses available in the local level but not experienced; they are not appropriate for caesarean.” (MS7)

Human resources management

Sanctioned staff are managed by the MoHP. A feature of this is that ad hoc transfers occur without consultation and this has affected Rukum hospital’s ability to deliver services. For example, one trained caesarean nurse was transferred.

“_____ [nurse] was here for OT, she stayed in quarter and provided 24 hour service. Now she was transferred and also difficult for doctor without her.” (PHO3)

The delayed budget release also affects staffing in Rukum as staff can only be contracted for short periods of time. Rukum hospital relies on individuals working voluntarily in the periods when the CEONC grant has not yet been distributed.

Availability and quality of equipment and supplies

Quality of CEONC equipment and supplies

Poor availability and maintenance of equipment and supplies were noted as challenges. Examples included, a lack of a consistent electricity supply as a back-up generator was required; insufficient suction machines available, the OT table was broken and the oxygen machine was not 100% operational. Blood supplies were unreliable and no NICU was available which made for difficulty when complications occurred. Medicines were provided to patients if they were available in the hospital, but if unavailable patients had to purchase them. The hospital was unaware of the government policy on providing completely free services to mothers.

“interviewee: We provided whatever we have in the hospital free. Antibiotics like cipro etc. required, are not available in hospital, these are asked to buy from patient.

interviewer: Mothers should get free services; have you seen the operational guidelines?

interviewee: Ah..., we don’t know about these things” (MS5)

Infrastructure

Lack of adequate physical infrastructure did not prevent delivery of CEONC services. However, its poor quality (the OT which was in a state of disrepair with a leaking roof) risked infections developing. Ideally, a new OT is required.

“The building is not good for operations. Sterilisation is not there in the operating theatre so it may get contaminated. There should be separate building for operations. Now, post op room is

also there in the operating theatre. It is an old building, leaking water. There have been many repairs but it's still leaking" (PHO3)

Procurement

The CEONC fund was used to purchase equipment and supplies. However, management of this process was inadequate. Delays in obtaining supplies occurred and deliveries were not checked and neither was the quality of repairs e.g. blankets purchased for patients appear to have gone missing and purchased equipment was not installed or necessary repairs undertaken adequately. These problems were ascribed to an inexperienced storekeeper and inadequate supervision by the MeSu.

"We bought one washing machine for the operating theatre, which is not fixed yet in the room.....blankets for patients were bought, but only 5 blankets were given to the hospital. Total 23 blankets were bought, [but] we have got only 5" (MS8)

"there was good support from the store before. I am feeling now we do not have support from the store as before. Many requests have been made for supply but we are not getting it" (MS5)

In-service training, supervision and teamwork

Induction of new staff

No formal mechanism for inducting new staff exists. There is poor coordination amongst the team members. New staff do receive a hospital tour and are introduced to other staff.

In-service training of medical staff.

In-service training is not accessed and some services are provided without sufficiently trained staff. Several staff require skills updating and refresher training, in particular in OT management and infection prevention. Two staff nurses had been trained in OT management but had not received any refresher training. Consequently, they lacked confidence in supporting caesareans.

"Last time operation was done without trained staff for scrubbing. Trained human resource are lacking here.....if medical officers were given ASBA [Advanced skilled birth attendant] training, the service will not be closed in the absence of Dr _____" (MS6)

Supervision

No formal supervisory arrangements were in place at the hospital.

"I have not seen direct supervision on the spot within this 3-month period." (MS6)

Teamwork and staff attitudes

Teamwork was weak, staff commitment low and staff were unwilling to talk openly (FO). These weaknesses might be partly a result of the CEONC team being new and relatively inexperienced. For example, the PHN had only been in post 5 months, a newly qualified AA 3 months and the MeSu 2 months. There were few staff meetings with no formal mechanism for inducting new staff and poor coordination amongst the team members.

Managerial style, monitoring and leadership

Interaction and communication

Staff meetings were infrequent and mostly informal. There were general meetings, but no meetings that were specific to obstetric services. Team communication was weak and there was poor co-ordination among the team members.

“There is no separate meeting for only CEONC. We have general meeting where we have interaction. There was no formal meeting but we do meet informally.” (MS6)

A further problem was that many team members were relatives. This potentially makes management difficult if staff are unwilling to take direction from family members.

“We all are local (from local place) and most are relatives. It is a problem ordering relatives to do a job or say something strictly. It is little difficult to work among team staff” (MS5).

Target setting and monitoring of performance

The expected number of caesareans for the hospital was noted as around 40 per year, however, it was not apparent who had set this target or who was monitoring whether it was achieved or not. Overall, there was limited monitoring of services and there was no medical statistics recorder. The recording/reporting system overall for the hospital was very poor and lacked consistency. Service data was inconsistently collected by paramedics with an unwillingness to take responsibility for recording data. What monitoring did occur was limited to clinical oversight by the CEONC fund contracted doctor. There was no oversight from the DHO. Monitoring would be welcomed.

“Nobody came for it as I remember. I do not know if anybody came in public health office, but nobody came in hospital for CEONC programme monitoring.” (MS5)

There is considerable discrepancy in the data between the number of caesarean reported to the HMIS and the number reported in the DoHS annual report (15 caesarean in the HMIS versus 82 in the DoHS annual report). Whilst this comparison is only available for 2013/14, it indicates a possible weakness in the recording of services in Rukum that could provide a challenge to the setting of targets and the monitoring of progress.

Awareness of progress

Staff did not have the perception there was a low caesarean rate and felt that institutional delivery had increased over the last year. The perception was that the CEONC programme had reduced the need for referral to other districts and consequently, the economic burden on the community was reduced. However, the potential weakness in the published service data (noted above) makes this perception of progress hard to verify.

Leadership

Confusion existed over who had overall leadership responsibility for the programme with both the caesarean doctor and MeSu/DHO cited although the caesarean doctor did not regard himself as the leader.

“management is not my task. I am neither a district level manager nor a central level manager.” (MS7)

Critically, there is no-one ensuring that services are provided in line with government policy at the hospital and that women are able to access maternity services entirely free of cost.

Further no-one was ensuring that supplies, infrastructure repairs and equipment were appropriately managed.

Managerial support and team building

Managerial support of CEONC services was weak. There were limited staff meetings and CEONC services were not prioritised by management. Supervision of staff was limited. There was no performance management process.

“I understand that an overall management is very weak. Looking to all these circumstances, it is difficult for CEONC.” (MS9)

Relationship with the FHD

There is no relationship with the FHD for CEONC services. No one has visited the hospital to support CEONC services.

Relationship with local community

There is a positive relationship with the local community. Since the initiation of the CEONC programme, trust has increased and there is increasing goodwill towards the hospital. Some cases that would have previously been referred out (by helicopter) could now be dealt with at the hospital.

“This is a remote area. A helicopter has to be chartered for referrals out. Now, it is available here. For example, one mother in Taxara (name of village) gave birth to twins, one baby was born in home, and one could not. After 3 days, she arrived in the hospital, where she delivered another safely.” MS8

Oversight by HDC

The Rukum HDC does not take a lead in oversight and management of CEONC services or give them priority. The HDC has limited capacity and was unaware of the requirements of the programme or the availability of the CEONC budget.

“The objective of HDC is not only organise meeting once in every three months but also they need to analyse it [services]. They should discuss what community can help. But they are not active discussing all these issues..... HDC does not have capacity for it ” (MS7)

“I am not much informed on CEONC budget provided to the hospital. So, I do not know much about CEONC budget..... As I know there is one caesarean doctor for this program, but not from HDC. There was not much discussion on this issue, so I do not know much about it.....I was not informed about CEONC activities, and others related to it. It was also not discussed in the meeting. So, I am not much aware of it.” (HM3)

Financial oversight

Budgeting

Neither the hospital nor the DHO can influence how the CEONC grant is allocated by the FHD and whilst according to the guidelines, allocations are for HR in general, in practice this has sometimes been for specific posts. This has led to an allocation of funds inconsistent with local needs.

“We received budget to contract lab assistant this year. We have enough lab assistant. Instead of lab assistant we need staff nurse.” (PHO3)

There was fluctuation in the grant allocated to the district between FYs (the grant was cut by more than half between the FY 2014/15). This caused confusion, inhibited planning and open internal decisions about grant allocation.

“There was a meeting. Only 5-6 persons involved in the meeting and decided how to use budget; We were angered; HDC complained; it was discussed that budget should transparent whoever handled it.....” (MS8)

Financial management

Very few staff were aware of the CEONC fund or for what it could be used. Only the hospital accountant was able to provide a clear indication of how the grant had been allocated and what had been expended under each budget line.

“There was no discussion about the budget, so we do not know about it. As I heard, it was used for recruiting human resources; advocacy; and purchasing equipment. These were told by [the CEONC mentor]. But I do not know if these were done or not” (MS7)

Delays in budget release caused difficulties in paying staff. As the HDC had very limited funds it could not provide alternative financial support and this meant individuals working without pay for a period of time on the understanding that they will receive back pay once the funds are received. The hospital management were unaware of any letter authorising expenditure from the FHD.

“[Two Staff Nurse] are working voluntarily. We do not have operational guidelines yet, so we are not clear on how to pay for them and management of their salary. They will be paid from CEONC budget as per contract made with them. Because of budget could not be received on time, we are not able to pay them.” (HM4)

Financial reporting

Financial management is poor with ad hoc reporting through both TABUCS and direct to the FHD through their CEONC fund financial monitoring system. Available financial reports through TABUCS and the CEONC financial monitoring tool demonstrate inconsistency. Expenditure was reported against the fund in TABUCS in 2013/14 with just over 50% of the budget expended (see below table). No expenditure was reported to the FHD as the accountant was unaware of the requirement. In 2014/15 no expenditure was reported, although interviewees reported that about 600,000NPR (i.e. about 40%) of the 2014/15 had been expended. The lack of financial reporting to the FHD means that expenditure cannot be tracked over the year nor understood to facilitate future fund allocations or to measure efficiency of resource use compared to service outputs.

Financial Year	CEONC Grant NPR (000)	Amount spent (000s)	
		Reported to FHD	Reported in TABUCS
2013/14	4,000	0	2,142
2014/15	1,500	0	0

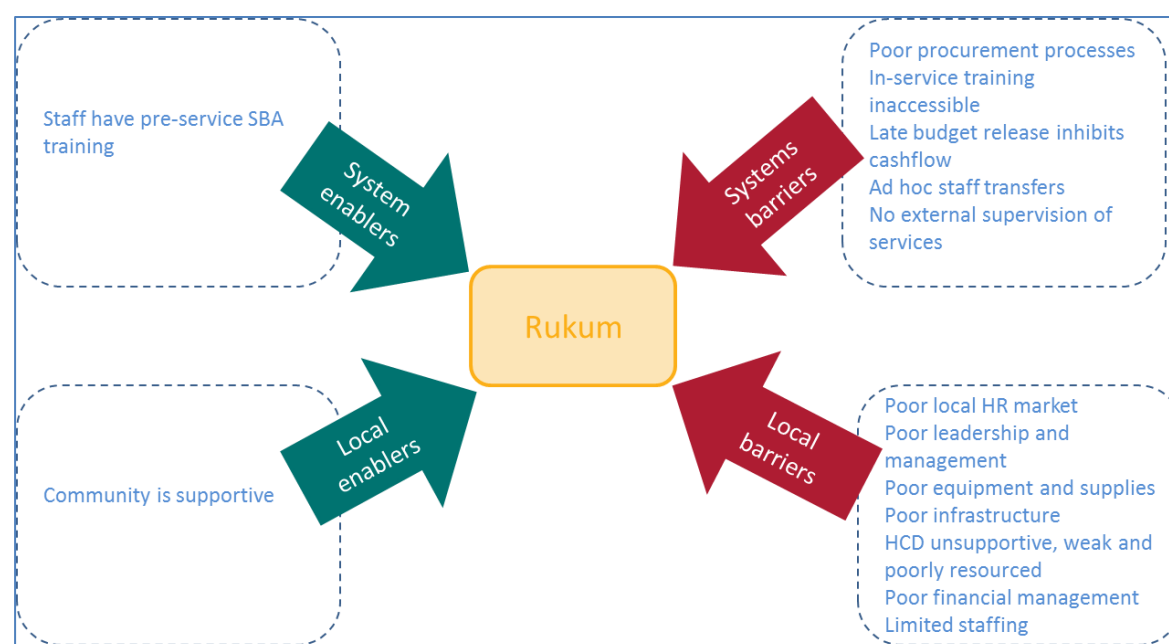
Regularly scheduled independent auditing

Financial audits have occurred of the whole hospital budget. No other official investigation, e.g. by the Commission for the Investigation of Abuse of Authority (CIAA) has occurred in the last 5 years.

Summary

The Figure below summarises the key systemic and local barriers and enablers to the delivery of health services in Rukum identified through the case study. This demonstrates, similar to Nawalparasi, the complex interface between local and systemic factors and the imbalance between barriers and enablers, with the number of both systemic and local barriers outweighing enablers.

Enablers and practical barriers to service delivery in Rukum



CEONC services are intermittent in Rukum and whilst the mere presence of any services is an improvement and appreciated by the community (a local enabler), there are substantial challenges to the quality and consistency of service provision. Critical local and systemic barriers to service provision include weak overall management, insufficient numbers of qualified personnel, lack of access to in-service training (which compounds the already weak experience of staff that can be recruited from a challenging local market, poor infrastructure risking post-operative infections, inadequate management of equipment and supplies. A key problem is weak leadership from all sides, clinical, public health and hospital management.

This results in weak teamwork and an unsupportive work environment. The process of planning and managing the CEONC grant is directed entirely by the FHD with no engagement between the centre and the hospital and consequently a limited understanding of local needs. As a result the grant is not directed towards the inputs that are identified locally as lacking.

Makwanpur

The Hetauda Hospital in Makwanpur has a high percentage of caesareans (9.07% of deliveries within the facility) and is in receipt of a low CEONC budget (1,200,000NPR) for the year 2013/14.

Operational environment

Makwanpur is in the Central Region. Geographically it is in the hill zone and is surrounded by terai districts to the south and mountain and hill districts to the north, east and west. Its border is only 34km from Kathmandu and Hetauda hospital is only 87km from the capital. Makwanpur is the third most industrialised district in Nepal, although much of its population relies on agriculture for their livelihoods (oneclickNepal, 2016). The district is predominantly populated by the Tamang community which make up 47.3% of the total district population (CBS, 2012). The HPI for Makwanpur is 28.44 better than the national average and the district has one of the lowest percentages of malnourished children under 5, ranking 5th out of 75 districts (UNDP, 2014). The district headquarters, and hospital location is Hetauda. The district was categorised as a crisis hit/medium impact district from the two major earthquakes which occurred of 2015 (Asia Foundation, 2015). Infrastructure was significantly affected with 37% of houses destroyed, 13,500 people rendered homeless and many health facilities, schools and other municipal buildings damaged or destroyed (Reliefweb, 2015).

The district hospital is a 50-bed hospital. It is separate from the DPHO and has more autonomy in the management of its budget. The hospital is situated close to road access and was rebuilt with well-planned wards and OT facilities in 2011. It has floors allocated for different departments with emergency and out-patient departments being located separately. It has a well organised labour ward, a spacious maternity ward with functional toilets and running water. The OT situated on the top floor is connected through ramps and steps. A separate post-operative ward, paediatric, male and female wards exist. Residential quarters are available for some health workers but insufficient for all of them. The infrastructure of the hospital was affected by the earthquake and the OT had to be temporarily moved from the top of the building to the same space as caesarean delivery.

Results against the theoretical framework.

Staffing and qualifications

Staffing

There are high levels of staffing in Makwanpur employed through sanctioned posts, CEONC fund and through the HDC's own funds. There are two caesarean trained doctors (one consultant gynaecologist from a sanctioned post in addition to one CEONC fund contracted doctor), two staff nurses, six auxiliary nurse midwives (who are lower skilled than nurses) and one anaesthesiologist and two AAs.

During the study period the blockade of the Indian border existed. This increased patient numbers from nearby terai districts because patients were unable to access local facilities. This increased pressure and caseload in Makwanpur. In addition, the upgrading of the hospital to a 50 bed facility was not accompanied by an equivalent increase in sanctioned posts. Interviewees felt that even the relatively high current complement of staff is inadequate to provide services.

“I think it is good to have three staff. One should look after the emergency cases, the second should take the extra delivery and the third should see the Post Operative ward” (MS10)

Qualifications

All staff recruited on contract to the CEONC programme have SBA training and two nurses have OT training.

Human resource management arrangements

Contracting doctors annually through the CEONC fund resulted in a lack of service continuity. Two years ago, financial support was obtained from the HDC and this has enabled two doctors to be employed continuously with regular service provision increasingly possible with the opportunity to support more complicated cases. This has encouraged increasing service uptake by the community. Stable staffing also enables staff to obtain clinical practice outside the hospital, which supports motivation.

Availability and quality of equipment and supplies

Quality of CEONC equipment and supplies

Good availability of drugs and equipment existed. The OT was clean and well maintained. However, equipment is becoming dated with upgrades and additions being desirable to meet high demand and the consequences of the rainy season (as there is no drying equipment available). Cooperation within the hospital has avoided problems so far.

Infrastructure

The physical infrastructure of the facility is satisfactory although the hospital management identified a need for a separate building for delivery services. Plans to repair earthquake damage to the OT exist as well as other infrastructure developments.

“the earthquake brought some problems. The upper floor where there was OT service, has been damaged. This has created difficulty. The master plan is ready and as it incorporates the programme of building the new infrastructure, probably it will start within a year” (HM5).

Procurement

There is a clear procurement process within the hospital with the store taking a proactive lead to ensure supplies are available and there is no shortage of drugs.

In service training, supervision and teamwork

Induction of new staff

New staff are inducted into the obstetric team. Initially new staff are given guidance and performance is monitored. Subject to satisfactory performance they are then allowed to work

independently. New staff are paired with experienced staff for up to 3 months to ensure they gain appropriate exposure and training.

In-service training of medical staff

Locally organised in-service training exists including on nutrition, tuberculosis, HIV, Leprosy and SBA training. Training is first given to sanctioned staff and then to temporary staff. On-site infection prevention training was available for all clinical staff in 2015.

“Matron does [allocation of training] for the general nursing staffs and sometimes Medical Superintendent does it for the doctors. In the government trainings, government staff are given more priority than the private staff. Sometimes, the name of the staff to receive the training is indicated directly from the higher level. It is done on rotation basis. Public will be benefited if all the staffs become skilful.” (MS13)

Supervision

The MeSu regularly visited the wards to address problems and there was no evidence of a blame culture if problems did arise. There also appeared to be good delegation of authority to department heads. The MeSu and heads of departments lead by example (e.g. arrive before formal office hours). The matron appeared to lead her team effectively, oversaw management and also helped in OT and to conduct normal deliveries.

Hetauda hospital had a formal performance management process, both for non-performing and high performing staff. For non-performing staff this consisted of a first verbal warning, followed by a written warning. For high performing staff there was public recognition in staff meetings.

“We usually take 2 consecutive actions. At first, we give verbal warning. Next time, we give it in written. Till now, it has not been necessary to go beyond this. They get aware after this. For the high performing staff, we gather them every 6 months and provide appreciative remarks in the mass and thus motivate them” (HM5)

Teamwork and staff attitudes

Teamwork was strong. There was mutual respect between the MeSu and the staff who each noted the support of the other. Division of work was fair and teamwork was good between contracted and sanctioned staff. Good coordination across teams (i.e. among administration, accountants, MeSu, sisters and doctors) was noted as key to ensuring positive teamwork for CEONC service delivery.

“Sometimes, there can be problems. But it is all about coordination. When there is high load, it is difficult due to the inadequate staff. However, all are cooperative.....we have good coordination and things are well managed in the 24-hour service.” (MS13)

Management developed staff motivation through financial incentives, exposure visits, public audit and meetings with the media.

Managerial style, monitoring and leadership

Interaction and communication

Interaction and communications between staff and between staff and senior management were good. Individual staff were able to talk with the MeSu directly, both through ad hoc meetings and regular monthly staff meetings. Since the hospital had become a 50-bed facility, relationships with the DPHO had become less formal and frequent. Whilst the DPHO was supportive, in practice, because they no longer had responsibility for managing HR their engagement was seen to be less important by the hospital. No adverse consequences had appeared and more autonomy had improved services as the hospital was able to add more general and specialist staff.

Target setting and monitoring of performance

Implicit targets of an annual increment in services were set by the hospital management, although there was a concern that caesarean should not increase unnecessarily and should be in line with clinical indicators. Service data records were kept by the record section of the hospital and there was clarity on the numbers of services provided by several senior members of the team. The process for monitoring performance was shared between the MeSu, the HDC and the DoHS. The MeSu focussed on the clinical aspects of performance, the HDC on client satisfaction and the DoHS on overall quality of care and service provision.

Awareness of progress

Staff were aware of progress in annual increases in patients and in service quality improvements. Common figures were cited from both hospital management and medical staff which would indicate that data is widely disseminated. The perception is that patients who would have previously sought treatment in other districts are now seeking care at Hetauda.

“Since the service delivery is good, even the patients who would have otherwise gone to the Bharatpur hospital, come here for delivery. Both the caesarean and normal delivery cases have increased”. (MS13)

Perception of their role

Roles and responsibilities amongst the leadership team are clear and this applies to responsibilities for CEONC services. The matrons and senior doctors consider themselves to have a responsibility for the CEONC team and their patients.

Leadership,

Leadership is strong. The HDC and MeSu place priority on CEONC services and ensure that problems are appropriately managed, even if that means visiting the FHD to petition for assistance. The MeSu regularly visits the CEONC ward and undertakes operations if required. The team felt highly supported by the leadership.

“He [the MeSu] gives [the CEONC programme] high priority. For example there was some financial problem in this programme. He himself visited the DoHS and settled it down. It is difficult to do but he has done it.” (MS12, 2015)

Managerial support and teambuilding

There is clear managerial support and teambuilding across functions. The managers set the tone for the working environment and aim to develop a positive culture through the practice of “good counselling” (i.e. that staff should be respectful to each other). In addition, the expectation is set by the management that no team will work independently and mutual will be provided as required.

“We should observe other departments also. I should not stay here saying I belong to CEONC. While in need, I should assist in surgery and emergency.” MS12

Relationship with the FHD

The hospital benefits from regular visits from the FHD which occur several times per year. These visits cover quality of care, monitoring of services, training in infection prevention and general support to CEONC services. They enable identification of issues, whether that is availability of equipment and supplies or training needs of staff. They are appreciated by the hospital.

“We have good support from the FHD. They make visits 2 to 3 times a year. Dr _____ [CEONC mentor] monitors CEONC.” (PHO4)

Relationship with local community

There is a strong relationship with the local community who have trust in the hospital, particularly in light of 24 hour services. The hospital has links with civil society and undertakes a process of public audit to ensure the transparency of their service delivery. This trust and local accountability is important in driving delivery services and has changed over time in line with a more client focussed service.

“In the past, they did not trust us and rather trusted on the service of the clinics. But now, they come here. The service is targeted towards the public. Now public trust has increased. There is more than 350 delivery every month. People from other districts like Rautahat and Sarlahi also come here.” (HM5)

Oversight by HDC

Hetauda hospital benefits from having a strong, engaged and financially independent HDC which is prepared to cover salaries and continue staff contracts in the absence of actual funds being received from the centre. The HDC have generated their own income stream through provision of laboratory and x-ray services, and by removing private providers from the hospital premises so that income can come directly to the hospital.

“There should not be gap in the budget release. The Hospital Development Committee bridges the gap. In the previous years, it was difficult for the committee to provide the salary. It [funding] has increased due to lab and x-ray service.....In addition, another important thing is that private x-ray clinics cannot run their clinics in the government shutters [facilities]. We had to struggle a lot to remove them and our income increased.” (MS11)

Overall, the HDC was helpful and active. The chair of the HDC visits the hospital daily and interacts with service users if they have any service quality issues.

Financial oversight

Budgeting

The CEONC budget received from the FHD is seen to be sufficient to meet hospital needs. The budget is allocated by the MoHP. No decisions are taken locally about its composition. The grant follows the CEONC fund guidelines, and expenditure only occurs within the specified budget headings.

“That [allocation of expenditure] is indicated in the guideline. The salary for the staff like anaesthesia assistant, doctors and nurses are pre-determined.....The expenditure can be done only as per the expenditure headings provided in the guideline.” (MS13)

The hospital wanted more consultation about the CEONC grant, particularly given the fluctuation in the grant allocated to the district between financial years. This fluctuation causes confusion at district level and inhibits planning. Greater flexibility in how the grant can be used was also desired.

“The doctors should also be involved in this [Financial decisions]. This is a 9-month project. Therefore, the new team next year may not like the suggestions of the current CEONC team. However, suggestions should be taken from the team.” (MS10)

Financial management during year

Whilst there was generally good understanding of the CEONC fund, there was some confusion amongst hospital management between this fund and the Aama fund¹². Whilst guidelines are provided for CEONC fund utilisation, awareness of these guidelines is mixed and conflated with the Aama guidelines.

“There is no separate CEONC fund. The fund of Aama Surakchhya Program is collected at hospital development committee's fund.” (HM6).

Problems due to delays in budget release from the centre were noted by several interviewees. The perception was that because this is an emergency programme, it should not be bound by the same rules as other budgets and release of funds should occur at the beginning of the fiscal year.

Hetauda hospital employs different strategies for managing the gap in CEONC funding. For example, it delays paying staff until the funding is released and then back pays staff.

“The budget is sent all at once. This time, it was not sent. Then, the salary was not given. The staff get the salary as a whole for those months. It came in Kartik¹³. They will be paid now from Shrawan¹⁴ to Kartik.” (MS13)

Whilst a 1-2 month delay is manageable for staff who are financially stable, this causes problems for lower paid members of staff who find it difficult to manage if salaries are

¹² Aama is a related maternal health programme that focuses on increasing the proportion of deliveries that occur in health institutions and thereby reducing related morbidities and mortality. Through this programme the hospitals receive payment per service provided. Those funds go into the hospital budget and can be used for providing financial incentives to health providers and purchasing equipment and supplies.

¹³ Nepali month running roughly 18th October- 16th November

¹⁴ Nepali month running roughly 16th July – 15th August

delayed. As another strategy, the MeSu directly lobbied the DoHS to send a letter committing to covering the funding and requesting continuation of services whilst awaiting budget release. This letter from the DoHS is seen as a sufficient level of surety to reduce the risk of the hospital using other budget lines such as the Aama programme to temporarily fund staff.

Financial reporting

Consistent reporting occurred through both TABUCS and direct to the FHD through their CEONC fund financial monitoring system (see table below). However, regular underspending occurs against the budget (with 43% of the grant spent in 2013/14 and 76% in 2014/15). This underspend is attributed to delayed release of the budget, and therefore insufficient time to expend the resources.

Makwanpur financial reporting 2013 - 2015

Financial Year	CEONC Grant NPR (000)	Amount spent (000s)	
		Reported to FHD	Reported in TABUCS
2013/14	1,200	517	517
2014/15	1,700	1,285	1,285

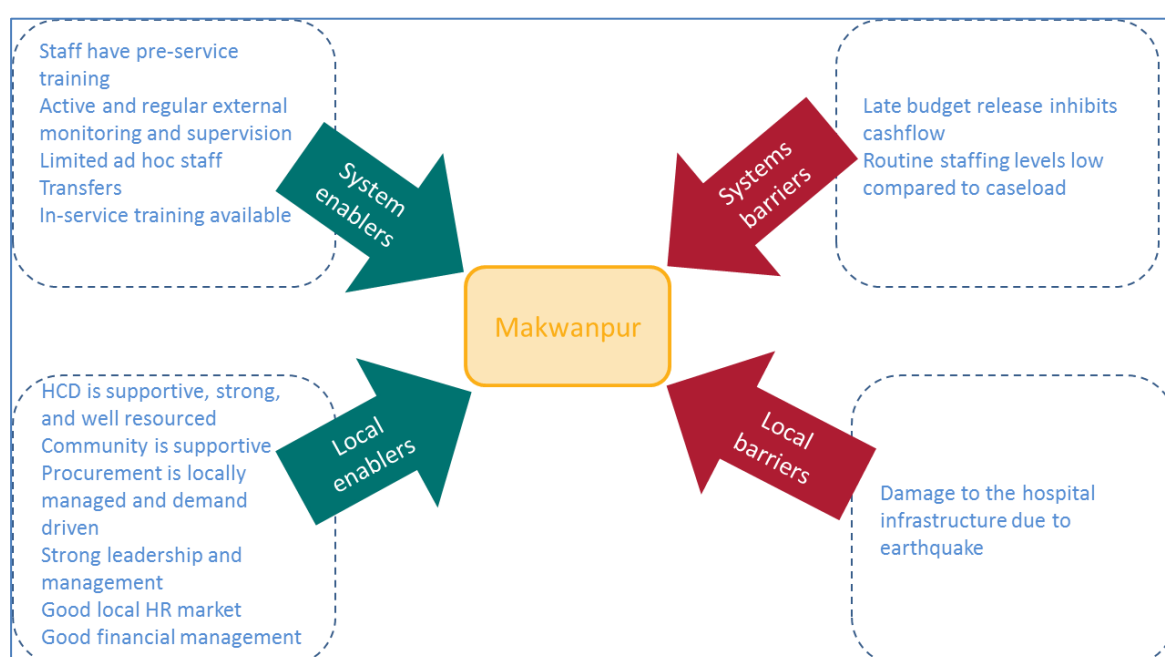
Auditing

Internal and external audits take place. The main concern of audit appears to be over ensuring that procedural rules are properly followed, e.g. over compliance with staff recruitment rules and compliance with the budget. Apart from taking audit comments into account, audit has little impact on financial management practice.

Summary

The figure below summarises the key systemic and local barriers and enablers to the delivery of health services in Makwanpur identified through the study. This demonstrates the complex interplay of local and system factors and the imbalance between barriers and enablers, with the number of both systemic and local enablers outweighing barriers.

Enablers and practical barriers to service delivery in Makwanpur



Critical local enablers for the performance of Hetauda hospital are the strong leadership from the HDC and MeSu resulting in a well-managed facility. There are robust and clear management practices in place, which facilitate strong teamwork and clarity on roles and responsibilities in delivering services. The hospital also benefits from systemic enablers and has strong relations with the FHD and is regularly visited by the CEONC mentor who is active in his support and guidance. Despite regular engagement from the CEONC mentor, some systemic barriers exist as the allocation of CEONC grants for staffing remains inappropriate for the local needs and increased engagement from the local team would ensure that there is more effective use of the funds. Whilst the team face challenges of insufficient staff numbers and delays in the release of the CEONC grant from the centre, the financial strength, leadership and teamwork in the hospital and the support of the HDC is sufficient to ensure that a continuous service can be delivered. The proximity to Kathmandu is a significant advantage to this hospital. Its convenience makes it attractive as a place to work and the regular interaction with the central departments creates an understanding of its problems which could well influence (maybe very informally) central departmental policy, demonstrating a non-linear engagement in policy formulation between the district and central levels.

Ilam

Ilam District Hospital was categorised as having a high percentage of caesarean (20.05% of deliveries within the facility) and in receipt of a high CEONC grant (2,900,000NPR) for the year 2013/14.

Operational environment

Ilam is in the Eastern Region. Geographically it is in the Hill zone and borders India. Ilam is a relatively prosperous district benefiting from fertile lands which have supported transition from traditional cereal production towards modern agricultural business (Subba, 2015). Many different ethnic groups are living in the district including Brahmin, Limbu, Chhetri, Newar and marginalized groups such as Lepcha, Sherpa and Sunuwar (Subba, 2015). The HPI for Ilam is 26.96 (UNDP, 2014) better than the national average. However, there are a high percentage of children under 5 who are malnourished (46.1%) and almost a quarter of the population do not have access to safe drinking water (UNDP, 2014). The district headquarters and location of the hospital is in Ilam. The district was not affected by the two earthquakes.

Ilam hospital was a 25 bed facility and was upgraded to 50 beds in October 2015. Ilam is a major hub for transportation and communication and is therefore a strategic location for the hospital enabling access not only to people from Ilam but also surrounding districts (Taplejung, Panchather, Tehrthum and Jhapa) (DPHO Ilam, 2013). Officially the hospital has recently separated from the DPHO, but only one month before data collection and in practice the DPHO still exercises significant engagement and oversight as if it was a DHO e.g. the 2014/2015 budget was sent to the DPHO. A new hospital building was built and brought into operation in 2013. The facility provides outpatient services; emergency services; in patient services; surgical services; laboratory services; X-ray services; dental services; ambulance services; community drug programme; safe abortion services; and free health services (including maternal health).

Results against the theoretical framework.

Staffing and Qualifications

Staffing

The hospital has sufficient staff to provide a 24/7 service with 3 doctors (2 general doctors and 1 gynaecologist). Staff are employed through a mix of contracts and sanctioned posts and they draw on staff from other departments, in particular the OT, to support CEONC services. Ilam is also a training centre so the hospital can draw on students, as necessary, to ensure sufficient coverage. The main staffing challenge is the availability of an anaesthetist. Only one AA is in post and when absent the OT is closed with patients being referred to other facilities.

“There should be at least two AAs so that CEONC services don’t get interrupted when one AA is not around. It is also easier to manage complications if there are two AAs.” (MS15)

Training

Highly qualified staff are seen to be the critical factor in ensuring the trust of the community in the facility’s services. Ilam currently has a qualified and reputable gynaecologist and general doctors who can cover for each other. Nurses are trained in SBA and OT management and the majority of the nurses have received SBA training. This allows the hospital to handle complicated deliveries.

“Most of us nurses are SBAs. So, we can handle even complicated delivery cases. We don’t carry out caesarean, that is something we leave for the doctors. We perform neonatal resuscitation

and vacuum delivery in complicated cases without supervision by a doctor. We all are confident. Only two of the nurses haven't taken SBA training; all others have." (MS17)

Human resource management

Human resource management is hampered by the transfer of staff by the MoHP without consultation with the facility. Both a doctor and an AA have been transferred to other districts which has adversely affected service delivery. The hospital had to petition the director general (DG) of the DoHS to have staff returned. Contracts for temporary staff employed through the CEONC grant have to be renewed every year, with staff taking written and verbal exams.

"Only one AA is available at current. The one which has sanction post of AA in this hospital is now working in Taplejung hospital. I am trying to return back in this hospital and I have already sent letter to the DG." (PHO6)

"The HDC doesn't know anything about the transfer of employees. We come to know about it only after the transfers are made. We have major problems when the doctors are transferred. For example, Dr _____ was working here but suddenly he was deputed to Dhankuta. Then came Dr _____. He too got transferred. It's our request that don't transfer the doctors who carry out the operation. Patients from Panchthar and Taplejung come to this hospital by paying up to Rs 40 thousand to ambulances. It is sad to refer them to other hospitals because of the lack of doctors." (HM7)

Availability and quality of equipment and supplies

Quality of CEONC equipment and supplies

The OT in Ilam is well equipped and has the drugs and instruments needed for CEONC service delivery. The HDC readily provides funds to purchase equipment if required and it has supported provision of equipment from NGOs. The main equipment deficiency is for neonatal care although some interviewees felt that whilst equipment was available it was not necessarily in the optimal condition and would benefit from updating. In addition, there isn't a NICU available which means that neonatal cases have to be referred to other facilities.

"our labour bed is not in a good condition. I have been demanding a new labour bed for the past many years. But they don't provide" (MS17)

Infrastructure

The hospital building where the OT is located is new and comfortable. Ideally a waiting room for maternity patients should be built, but this is not currently restricting services.

Procurement

Procurement is adversely affected because of a lack of technical knowledge by staff involved of medical equipment and supplies. This results in delays in acquisition.

In-service training, supervision and teamwork

Induction of new staff

No formal induction process exists for new staff. However, new staff are:

- introduced to the team during a staff meeting;

- Informed about the OT rules and regulations including use of different equipment;
- Teamed with more senior staff member for two or three deliveries.

In-service training

In-service training is available to staff although it is ad-hoc and refresher courses are required, for example, on infection prevention. Staff have received training on neonatal resuscitation and on “one golden minute”¹⁵. NGOs have provided some training.

CEONC service delivery has benefited from targeted in service training to key staff members. An example was provided of an inexperienced doctor who did not have the confidence to perform caesarean on her own. She was helped to attend another hospital to build her experience enabling her subsequently to provide caesarean.

“Then Dr. _____ was transferred to Sindhuli. Dr _____ didn’t have full confident for caesarean, she could not do alone caesarean. Then I sent her in AMDA hospital for practice for 5/6 days where she did Caesarean cases. Coming back to Ilam hospital, she started to do caesarean.” (PHO6).

Supervision

The MeSu supervises the services and is supported by department chiefs. However, supervision does not appear to be systematic.

Teamwork and staff attitudes

Currently teamwork amongst those providing CEONC services was perceived to be generally good amongst the nursing staff. However, some tension amongst the doctors was reported which was attributed to the competition for receipt of financial incentives for the delivery of certain procedures, in particular caesarean. The DPHO sought to manage this by the introduction of an ultrasound service for provision of which doctors also receive an additional financial incentive.

“Conflicts are raised because all doctors wanted to do caesarean.....The major conflict is due to incentives/money. Now they are working turn by turn. Ultrasound service is available. They get extra money from ultrasound. Ultra sound charge is 550 rupees per case and 50% of it goes to doctor who do ultra sound. So, all are willing to do ultrasound.” (PHO6)

Managerial style, monitoring and leadership

Interaction and communication

Regular monthly minuted staff meetings were held where issues could be raised and discussed as well as ad hoc meetings based on need. There are trimesterly Reproductive

¹⁵ Within one minute of birth, a baby should be breathing well or should be ventilated with a bag and mask. The Golden Minute identifies the steps that a birth attendant must take immediately after birth to evaluate the baby and stimulate breathing. (healthy newborn network <http://www.healthynewbornnetwork.org/partner/helping-babies-breathe/>)

Health Care Committee and Maternal and Perinatal Death Review (MPDR)¹⁶ meetings which provide a forum for the doctors to discuss their resource needs as well as analyse clinical incidents with the DPHO. There are also clear duty handover processes where current experiences are shared.

Target setting and monitoring of performance

No clear targets were set for service outputs and there was no external monitoring of performance by the DPHO. Within the hospital, however they have a system of MPDR which provides a basis for monitoring and reviewing service delivery and ensuring that lessons are learned from maternal, neonatal deaths and “near-misses” to identify the facility gaps and challenges including underlying causes. This supports improvement of quality care at the facility level.

Awareness of progress

Staff were aware of a general improvement in the number and quality of services provided, but felt that improvements could still be made. However, without clear targets set by the management actual progress could not be quantified.

Perception of their role

Staff had a clear perception of their roles and responsibilities. Now the hospital has separated from the DPHO, the DPHO role has changed from one of leadership to advisory.

Leadership

With the increase to 50 beds, management of the hospital has recently changed from being under the control of the DPHO to management by the MeSu and the HDC with oversight from the DPHO. Monitoring of CEONC services is mostly performed by the MeSu. There have been challenges in leadership in the past, which led to the hospital gaining a poor reputation, conflict between doctors and poor levels of staffing. The perception was that this was partly due to the leadership of the previous MeSu and that significant inputs were required by the DPHO to manage the situation.

At the beginning, the situation of Ilam hospital was not good. Gradually, I had organized meeting, took leadership. I had managed with media people as well for CEONC service, I had meeting with civil society, District Development Committee (DDC) and political groups for CEONC service. Then after, political persons are supporting us. (PHO6).

However, the current MeSu is seen as a positive contributor to the overall reputation and operating of the hospital.

After joining by Dr _____ [current MeSu], the environment of the hospital changed and was good. There has been good reputation of the hospital. (PHO6)

¹⁶ Maternal and Perinatal Death Review (MPDR) is an evidence based approach that cross examines both health system and social factors through a systematic process. The MPDR in covers maternal and neonatal deaths including stillbirths in both the community and at facility level, maintaining anonymity as well as a no-blame and non-punitive environment with participation at all levels.

Managerial support and teambuilding

There is mutual cooperation between the ward staff and OT teams which creates a supportive working environment. The leadership encourage teams to cooperate and through the MPDR there is a process of a 'no-blame' review of challenges. One emerging problem though is that financial incentives are available to those doctors who perform complex procedures. From a positive perspective, these incentives have not unnecessarily increased the provision of caesarean, but it has created discord in the team as all doctors compete to be able to perform the procedure in order to obtain the financial reward.

Relationship with the FHD

Monitoring of the CEONC programme from the central level is perceived to be weak. At best only annual visits have occurred.

"Who comes from central, nobody... Dr. _____[CEONC mentor] visited 2 years back. Dr. _____and Dr _____[FHD staff] visited once in last year. Then nobody came from Kathmandu"
(PHO6)

Additional monitoring would be appreciated and interviewees also felt it would boost staff morale.

Relationship with local community

The community is perceived to be supportive of the services as its reputation improves.

Oversight by HDC

The HDC in Ilam do not have a formalised meeting schedule, meeting on an 'as needed' basis which can in some circumstances be quite frequent. However, the perception is that the HDC is engaged and functional. The HDC do not play a direct role in managing CEONC services, seeing their role being to ensure hospital services more broadly are running effectively.

"Our role is to make the hospital's services more effective. We watch the service delivery by the hospital and play a constructive role in making it more effective." (HM7)

However, the HDC have hired two staff on contract to the CEONC programme (as well as many others across the hospital) and are perceived as being helpful in the running of CEONC services.

"It [the HDC] has been helpful. They have helped us in managing manpower and equipment. They work at the policy level." (MS15)

Financial oversight

Budgeting

The budget for the CEONC fund is developed centrally and neither the DPHO, nor the hospital staff, contribute to its preparation. There is significant fluctuation in the grant allocated to the district between financial years (the grant dropped by two-thirds between the FY 2013/14 and 2014/15). This causes confusion at district level, inhibits planning and consequently is seen as inappropriately allocated and inadequate for the needs of the hospital.

We do not have direct role and contribution in budget preparation. Budget is not like "demand based or request based". FHD puts budget i.e. not proper as per our need. (PHO6)

Financial management during year

No expenditure was reported against the fund in either TABUCS or direct to the FHD through their financial monitoring system. It is unclear if this is because no funds were spent against the fund or financial reporting is inadequate. However, the interview data indicates a high level of confusion between the CEONC fund and the Aama programme with both public health staff (nominally in charge of the CEONC budget) and senior clinical staff conflating the two funding streams. This may be the cause of the lack of financial reporting against the CEONC budget line.

Ilam hospital has been affected by the delays in payment of CEONC funds. In 2014/15 this was almost 5 months of the year. The hospital employs different strategies for managing the funding gap. In FY 2014/15 the HDC in Ilam covered the costs of contract staff for 5 months. At the point at which the research was taking place (i.e. in the FY 2015/16) some staff had not been paid for four months. They were working essentially voluntarily, but on the promise of receiving back pay and a lump sum of four month's salary.

"It's been four months since we haven't got our salary. But we hope to get it over the next few days." (MS17)

The hospital had received a letter from the FHD asking them to cover salaries and CEONC costs in the interim before the budget was released. However, the perception was that because this letter did not come from the DG of the DoHS it had no legal standing and would not be accepted as evidence for continued expenditure by the Budget and Account Control Office.

Financial reporting

Financial data is not available from TABUCS or the FHD on expenditure against the fund. This may be due to confusion with the Aama fund.

Ilam Financial reports to TABUCS and FHD

Financial Year	CEONC Grant NPR (000)	Amount spent (000s)	
		Reported to FHD	Reported in TABUCS
2013/14	2,900	0	0
2014/15	1,000	0	0

Auditing

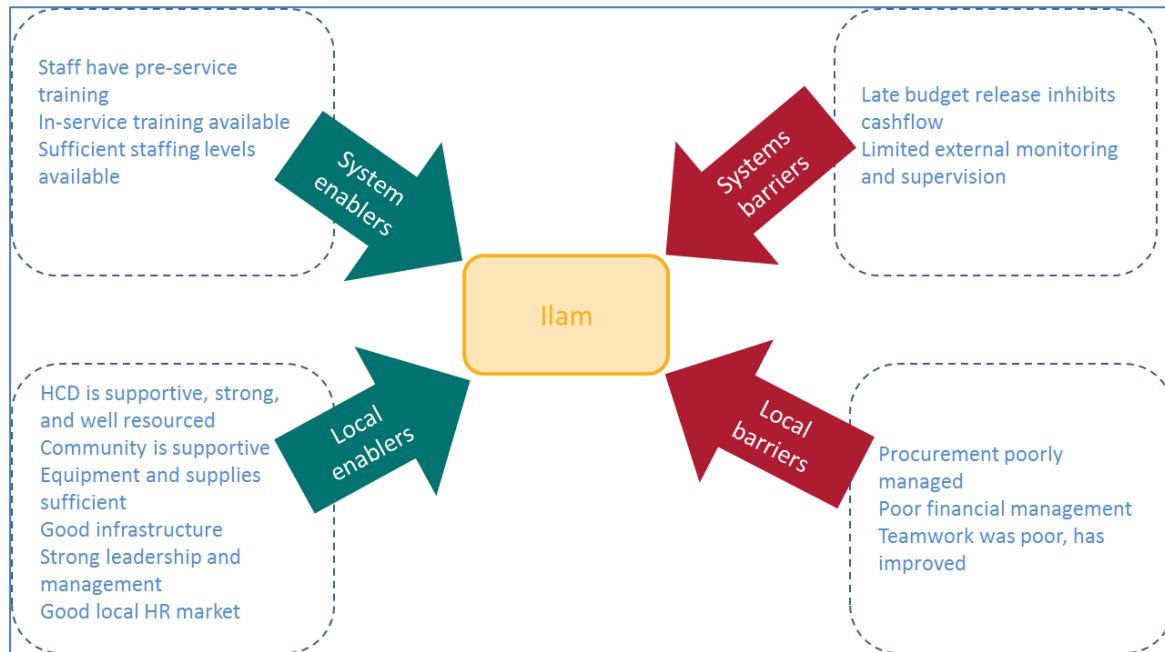
The office of the auditor general undertakes an audit. The auditors seem unfamiliar with the guidelines for the various programmes. The audit process is therefore not particularly helpful in improving financial management.

Summary

The figure below summarises the key systemic and local barriers and enablers to the delivery of health services in Ilam identified through the case study. This demonstrates the complex interplay of local and systemic factors and the imbalance between barriers and enablers.

Whilst the balance between barriers and enablers is more equal than Makwanpur, on the whole the number of both systemic and local enablers outweigh the barriers.

Enablers and barriers to service delivery in Ilam.



The key systemic enabling factor affecting the level of caesarean in Ilam is the availability of an almost full complement of skilled staff. Services can be provided 24/7 as duty schedules can be efficiently managed. As a local enabler, Ilam also benefits from a financially independent and interested HDC that is a local adaptive agent that has reacted to the systemic weaknesses, prioritises CEONC services which is willing to provide financial support as necessary. The quality of management practices in Ilam is mixed. Supervisory arrangements are unclear and there is a reliance on informal processes to induct staff. Conversely, there are regular staff meetings and the process of MPDR allows for open and frank discussions on how to improve the quality of services. As a systemic barrier, Ilam does not receive good or frequent support from the FHD. The CEONC fund allocation process does not reflect the needs or circumstances of the hospital including referrals from surrounding districts.

Additional Themes Identified

Several additional themes were identified through the data analysis of the case studies that broadly lay outside the theoretical framework developed from the literature. A selection of these additional themes are detailed below (these are).

Referral

Referral of cases both into and out of the district was a critical factor identified by interviewees from all case study hospitals as a key factor driving the numbers of caesareans. In the poorer performing districts, Nawalparasi and Rukum, their inability to provide services 24/7 and the lack of appropriate facilities (for example an adequate blood supply or NICU) meant that cases need to be referred on to other facilities.

When complicated cases come from the community, we have to refer them to well equipped health facilities. Reasons behind the referral of cases is due to inadequate staff and the lack of NICU. (MS3)

Conversely, in Makwanpur and Ilam there were high levels of referrals and self-referrals from patients outside of the district as well as a reduction in referrals onwards from the hospitals as a result of increased capability of the staff to cope with complex cases. For example, during the fuel crisis in 2015 there was a higher caseload as Hetauda was more accessible for patients from surrounding districts than their own district hospitals. In Ilam several of the surrounding districts lack doctors, so Ilam has to cover patients from several localities.

There was no doctor in Panchther, so cases are coming from there also. If doctor not available for Caesarean in Taplejung, then they also come here. But, cases from Fikal go down the hill. (PHO5)

In Hetauda, however, this increased caseload put extra pressure on an already overloaded team.

As there is blockade in the Terai districts like Sarlahi, Siraha and Birgunj, the patients from those districts also come here. Therefore, our workload has increased and it is difficult to manage. (MS10)

Quality of care

A reputation for good quality of care and positive attitudes of health workers contributed to whether a client would choose to go to a facility or not. This was an inhibiting factor in Nawalparasi, where one interviewee cited poor behaviour towards clients as a barrier to access.

We can demand for health workers. Whether the hospital (Prithvi Chandra) is providing quality services or not is linked with various such factors as people's attitude and behaviour. There is a difference between speaking a couple of nice words and speaking in a condescending manner with the people seeking services. Those who get overlooked while trying to receive health services will not come back. For this, it is essential for health workers to change their attitude and behaviour. I think if we change our behaviour and attitude towards our clients or beneficiaries, they will be satisfied with our services. (PHO2)

Providing quality services though was inhibited in Rukum by staff transfers as qualified staff were transferred away from the district.

One sister trained for scrubbing, got promoted and transferred. Last time operation was done without trained staff for scrubbing. Trained human resource are lacking here. (MS6)

Conversely in Makwanpur there was a systematic mechanism to measure and ensure quality of care through a quality scorecard. Similarly, in Ilam they were running a maternal and perinatal death review programme which enabled systematic investigation of adverse events and a review of whether quality services were provided. This has built the trust of the community.

Multiple overlapping programmes

At the district level, there is some confusion between The Aama Surakshya programme (Aama) and the CEONC fund. Aama is a related programme that focuses on increasing the

proportion of deliveries that occur in health institutions and thereby reducing related morbidities and mortality. Through this programme the hospitals receive payment per service provided. Those funds go into the hospital budget and can be used for providing financial incentives to health providers and purchasing equipment and supplies. Whilst guidelines are provided for CEONC fund, awareness of these guidelines is mixed and conflated with the Aama guidelines. This can create confusion at the district hospital level about how and when the CEONC funds can be spent and whether they include incentives for individuals. There was a lack of clarity on the different funding mechanisms amongst staff in public health, administrative and service provision functions. Whilst it might not be expected that medical personnel would have much knowledge of the different financing mechanisms even hospital management and public health officers who should be overseeing the financial management of the separate programmes were also unsure of between the CEONC fund and Aama. This confusion was present in all districts, regardless of whether they received high or low levels of funding, or whether they provided high or low levels of caesarean section.

“Interviewer: Do you know how CEONC budget is managed?

Interviewee: I know about it. There are incentives for doctors, can be used for repair maintenance if required. I think incentives can be given to nursing staff and AA, but I don't think so they get it.

Interviewer: Don't nursing staff get incentive?

Interviewee: That's what I am telling. They received incentives out from 7000 per case C/S, but I guess they have not received incentive from CEONC budget.” (PHO5)

“There is no separate CEONC fund. The fund of Aama Surakchhya Program is collected at hospital development committee's fund.” (HM6)

Separating the two funding streams from a financial reporting perspective, was further complicated at the central level as, until recently, all financial data from district hospitals was reported in aggregate to the MoHP.

Managing public sector spending pressures

Shortage of funds for public services and an inability to plan over the longer term affected all hospitals. Whilst multi-year budgeting is nominally a feature of central government budgeting, funding decisions are actually made annually. There is no practical focus on improving efficiency and effectiveness in public expenditure. A lack of financial resilience also means that unforeseen events, such as the 2015 earthquakes, overtakes any financial planning decisions.

“Interviewer: what is the priority of government centrally for providing CEONC services and funding?

Interviewee: We put money, we allocate budget. This is not only my decision. This is a long process. From us it goes to DG and to ministry and then to planning commission to finance ministry and in finance ministry we have to defend , this time also we put 90 million and increased number of districts also but from finance ministry it was cut down to only 56 million. It's very difficult, we now have to adjust that money.

Interviewer: Did they give reason for why they cut the budget?

Interviewee: Because of this earthquake, all money went to the response. We are supposed to expand 5 districts and we sent money for equipment in 5 districts, but it was a lot less money that came from the finance ministry so we will now expand in two districts only.” (CI16)

Staff motivation

Two key areas of staff motivation were highlighted by the interviewees that affected staff recruitment and retention. Firstly, career progression. In Ilam, the staff felt that they had opportunities to build their skills which improved their career prospects overall.

“The working environment is good here. We get to see interesting cases here. So, if you work here for some time, it’s easier to work at other places.” (MS16)

In Nawalparasi, however, the HDC found it difficult to recruit contract staff because career prospects weren’t as good as those in government sanctioned positions.

The government staffs get promoted and transferred, which increases their career prospect but the staff members hired by the Board don't have transfer opportunities and they have limited scope for promotion. (HM2)

The other motivation was that incentives are provided under the Aama programme but not under the CEONC fund. The salaries of government doctors are low and they rely on incentives to boost their income. Without this there is a need to seek salary supplements through working in the private sector.

“The other motivation is the incentive they get. Nobody wants to work if there is no incentive (laughs). The salary provided by the hospital is not that much. If you compare the salary of a peon and that of a doctor, there is a difference of only Rs 10,000. Our salary is that low. We make some extra income from CEONC. The incentive we get for providing CEONC service is the biggest motivation.” (MS16)

“The responsibility [for caesareans] should be given to the CEONC doctor. The incentive should be solely provided to the doctor. If the incentive is given to doctor then he/she would not go for private practice. Therefore, there will be no problem in the CEONC.” (MS12)

However, as noted above, these incentives can also lead to disharmony in the team as certain doctors seek to perform all the caesareans in order to monopolise the financial rewards.

Trust between districts and the MoHP and FHD

With the exception of Makwanpur where regular visits from the CEONC mentor occurred, there was a lack of trust between the districts and the central level. This manifested itself in different ways. In Ilam the hospital management was unwilling to accept a letter from the FHD to encourage them to continue to provide services during the period where there was budget delay.

“Who comes from central, nobody... Dr. Prajapati visited 2 years back. Dr. Kiran and Dr. Shilu visited once in last year. Then nobody came from Kathmandu.

IV: Did you receive the letter sent by FHD to continue staff in the next fiscal year?

IE: yes, we received it. It was not from DOHS. FHD sent us but that do not have any legal value.” (PHO6) Ilam.

This same letter was received by Makwanpur, but due to their positive relationship with the FHD they accepted the risk based on the direction in the letter that they would receive reimbursement.

“Dr. _____(CEONC Mentor) visits every 4 months. He conducts the meeting and discusses about the lacking issues. He suggests that the patients should not suffer and should not buy medicines from outside. He provides knowledge on CEONC. He sees the OT and assesses what is lacking. NHSSP had sent us a letter to continue the program. Before that, the authority had made an investigation on why the program was not given continuity.” (MS10) Makwanpur

Nawalparasi and Rukum also lack trust in the centre to adequately support them. The perception was that the budget is released late from the central level, but they are the ones having to explain to auditors why funds have not been spent as expected. They also do not believe the Ministry will support them, even if they have had personal assurances.

Budget is not released in time. If it is released at all, it is released at the eleventh hour. And, when the accounts get audited, auditors catch hold of us why the money is not spent as expected and if it is spent, why the money is spent. (PHO2)

I don't think the Ministry has done anything to run CEONC services. When we go to the Ministry and enquire about the continuation of the support, they take it lightly and say that it will be extended. I went to the Department of Health Services for continuation of the programme, the DG told me to prepare a proposal stating what is required from the Department and which equipment or materials are required. He told me that the Department could support from regular resources. We have not sent the list (proposal) yet but I am not sure if he will send the items if it is long. (PHO2)

Central Level Interviews

In addition to the case studies at district level, nine semi-structured interviews were undertaken with key personnel at the central level. The purpose of these interviews was to triangulate the data from the districts and provide an understanding of the functioning of the CEONC fund and the delivery of CEONC services from the perspective of those working with an overview of the whole system.

Overall the perception of the CEONC fund and the CEONC programme at the central level is that if the fund is properly utilised it has increased services as well as reducing maternal mortality, child mortality and neonatal mortality. However, the interviews also reveal concern about aspects of the present CEONC fund arrangements and that the delivery of CEONC services indicates a complex system, but those concerns do not extend to indicate a central ministry aiming to achieve reform to the system.

Staffing and qualifications

Staffing

The central level interviewees recognised that sufficient and skilled HR are critical to the delivery of CEONC services but that clinical staff can be difficult to recruit and hard to retain, particularly in remote districts. In some districts the enabling environment for doctors is poor,

with no quarters provided and poor salaries, particularly on the part of doctors employed by the government (as opposed to on contracts). This leads to attrition of staff from the public to the private sector.

The CEONC fund is meant to supplement the hospital budget and enable the hospital to build one obstetric care team. The central level interviewees accepted that because the staff recruited through the CEONC fund are contracted and not in government sanctioned posts, they are often paid substantially more and that this can cause conflict which has led to some government staff refusing to work.

“somewhere doctor is there, all team is there but they are not working, mostly government doctor even they can, they are not doing because they say "I am getting low salary than CEONC doctor" “ (CI1)

Qualifications

Overall, the central level interviewees accepted that it can be challenging, particularly in remote districts, to bring together a comprehensive and qualified team. In some districts, they have advertised 2 or 3 times for CEONC staff, but there have been no applicants, despite higher salaries offered. In some areas, the numbers of qualified and trained people are limited and competition for them can be severe.

Human resources management

The central level interviewees accepted that staff postings for sanctioned posts are managed at the central level, but currently there is a lack of HR planning by the MoHP. No priority is given to districts which are currently providing CEONC services thus allowing them to continue to do so. There is also an ad hoc approach to staff transfers, with no consideration towards keeping a team stable, ensuring that a full team is in place to deliver services or indeed that staff with specialist skills are posted at the right level in the health system.

“The MoH also need to change the HR transfer [arrangements], they have to think they shouldn’t change the team you know. So there are many districts that due to disruption of the team, the service has stopped” (CI3)

They pointed out that whilst districts can recruit staff on contract given the time it takes to recruit staff and the annual delays to the budget release can mean that contracts only run for a few months. There was an acceptance that an ability to enter into multi-year contracts would be an advantage. Multiyear contracts would also enable hospitals to retain well performing staff, rather than annually embarking on a lengthy recruitment process. Pressure within the FHD does exist to facilitate multi-year contracts, but procedural difficulties and administrative unwillingness prevent progress.

“Lots of advocacy was done to do the multiyear contracting and people realize its need also but there are other administrative issues. There are some clauses that if they work more than this many years they have to be made permanent, so financial department [MoF] is not ready to make multiyear contract.” (CI3)

Quality and availability of equipment and supplies

Quality of CEONC equipment and supplies

The central level interviewees made the point that grants of 1,000,000 NPR (~£6,600) are allocated to districts accessing the CEONC fund for the first time to purchase CEONC equipment, such as OT tables, lamps and delivery beds. A further budget of 300,000NPR (~£1,950) to maintain the equipment is also made. However, in 2015 the MoF cut the equipment budget by 300,000NPR.

“Now we don't have this 3 lakh¹⁷ extra fund for CEONC because fund is very low, so, only CEONC new site will be given 10 lakh, this year no extra money, suppose if a OT bulb is fused the CEONC will stop because OT bulb is very costly.” (CI1)

Procurement

The point was made that initially the procurement budget was held by the FHD but inefficient procedures caused it to be delegated in part to districts for the purchase of such items as OT tables and lamps. This delegated authority has not been accompanied by any training in procurement and as a result sometimes inappropriate equipment has been bought.

“in Jumla they got solar lights and they bought few things but they didn't know that small battery was needed and once the battery ran out there was no provision for that kind of battery to be available in the market” (CI3)

In-service training, supervision and teamwork

In-service training of staff

The intention of the CEONC fund was just to hire already trained staff. A separate training budget exists. Interviewees recognised that not all doctors are skilled and confident. The solution adopted was to rely on the CEONC mentor to provide training and support to doctors to give them confidence to provide caesareans. But this too, they observed, is an inadequate solution because of the added burden it imposes on a single person.

Supervision

There was a recognition that there is little investment in management training or leadership development. As a result, there is neither the individual nor collective understanding of the role of the manager, nor a sufficiently robust management and accountability system to hold people to account for the delivery of services.

“It's more a system question, does the person have the reasonable system to work in, does he or she have a supervisor, who knows who cares, who gives feedback, you know for us one of the thing is...Is there a definition of what you are supposed to do so, this thing of what we called the minimum service standard which we think at very least provides a report card that says this is what you should do” CI5.

Teamwork and staff attitudes

For the system to function effectively the central interviewees recognised that teamwork and positive staff attitudes should exist in hospitals. Where there is a progressive MeSu and/or HDC acting as a local adaptive agent this will occur but this approach is not universal.

¹⁷ lakh is a unit in the Nepali numbering system equal to one hundred thousand

Interviewees recognised that where there is a strong leader and a committed team, this makes a substantial difference to the performance of the facility.

“It makes lots of difference on the managers role and definitely, the team if the team is committed, and if they can, if they have the attitude of saying ok, I need to do it I have to do it and it’s my responsibility and accountability towards what they are doing, I think that would definitely make a lot of differences.”(CI4)

Managerial style, monitoring and leadership

Interaction and communication

There is a complex relationship at district level between the DHO/DPHO and the MeSu which depends on the size of the hospital and the relative seniority of the DHO/DPHO and the experience and ability of the MeSu. This complex relationship stems from an administrative arrangement for overall funding for hospitals established by the DoHS. Some hospitals are under the MeSu (if it is above 50 beds) and some are under the DHO. If the hospital is under the MeSu, in these cases there is a DPHO separate from the hospital. In these circumstances, whilst the grant from the FHD nominally goes to the DPHO, they do not have any influence on how or whether the grant is spent. Conversely if the hospital is under 50 beds and comes under the jurisdiction of the DHO, there is greater oversight of the funding, but this does not necessarily lead to improved service numbers. There are several examples of conflict between the DHO/DPHO and the district hospitals where improved clarity of roles and responsibilities would be beneficial.

“In Sagarmatha there is a very good DPHO, but he says I cannot do anything it’s not in my hand. He has given up.”(CI4)

Setting of targets and monitoring of performance

The overall targets for the health system are set through the NHSS. However, individual targets for district hospitals based on local circumstances are not available. Monitoring of hospital performance is seen as a crucial task of both the FHD and the DHO/DPHOs. The central interviewee perception is that the DHO/DPHOs should be responsible for monitoring the CEONC fund and services, although this runs contrary to the perceptions of the DHO/DPHOs in the case study districts. DHO/DPHOs should monitor performance against objectives and patient numbers. The FHD should also assess if activities are carried out on time. The FHD also has a responsibility to monitor patient satisfaction and whether the service is meeting patient needs. In practice, neither of these DHO/DPHO or the FHD are adequately performing these functions. There is little or no linkage between the service monitoring and the monitoring of the finances and little follow up to establish if grants are awarded what services result (and it can happen that grants can be made for several years but with no service resulting).

“In Tanahun and Syangja since 3-4 years we always put money but they didn’t start services.” CI6

Leadership, managerial support and teambuilding

Leadership at the district level and the strength of both the DHO/DPHO and the MeSu are recognised as important factors in the delivery of CEONC services. The manager’s skill, attitude and leadership are important and can influence the ability of the team to deliver. No

matter how good the team is, if the manager is poor, services will be negatively impacted as so much comes under the control of the manager. Leadership is perceived to be the key thing in the Nepali context which really makes a difference in utilisation of services.

“It worked very well in Gulmi for example where the doctor was dynamic, the local Medical superintendent was co-operative and the population was generally progressive. They went from 0 to 80 C-section within a few years with doctor getting there. They tripled the number of patients from 15 thousands to 45 thousands.” CI5

A feature of leadership is a recognition of the dynamics of the team and its composition. In some circumstances having multiple doctors on a CEONC team can cause friction and this needs to be managed.

Relationship with the FHD

Leadership for the programme at the central level is with the FHD. However, they oversee 89 different programmes, of which CEONC is just one. The FHD themselves have capacity issues which mean that certain crucial roles are either not undertaken, not undertaken by people with the relevant skill set or are undertaken by externally funded consultants, such as the CEONC mentor and therefore potentially transient depending on the will of external donors to continue funding.

The CEONC mentor provides the main monitoring role of the programme on behalf of the FHD. However, despite travelling almost every week, he alone is unable to cover all the districts, especially with the planned expansion to all 75 districts. The CEONC mentor will monitor the whole hospital, including the operating theatre, the labour room, the ward, the availability of equipment and supplies, the use of appropriate clinical tools. The mentor will also meet with staff and identify issues with delivery of the programme including whether the team is capable of utilising the grant money. If required, he will also provide training and advice. However, the FHD recognise that now there are so many districts receiving the grant just one mentor may no longer be feasible.

“The CEONC mentor is very necessary but currently only one person. Now there are 65 districts it is very difficult to manage all those places. There needs to be two more mentors I think dividing all the districts between them and having responsibility for monitoring, skills building, and generally supporting the districts. There needs to be central level supervision.” CI3

Relationship with the community

The central interviewees acknowledged that the relationship with the community can have an impact on the delivery of CEONC services. In some districts, they accepted that clinical staff feel insecure in delivering services as the community can be aggressive and even violent, particularly if there has been a death as a result of a complicated delivery. The doctors may refuse to undertake any caesareans for fear of repercussions from the community.

“In the Arghakhanchi community is violent so they are afraid there after death of PPH [post-partum haemorrhage] case, they were not doing caesarean till 8 month though doctors were available.” CI1

The CEONC mentor, as part of his role, has tried to mediate in areas where there are poor relationships with the community. He has supported meetings between the hospital

manager, the chief district officer and the military and provided information to key stakeholders and the media as an advocate for CEONC services.

Oversight by HDC

The hospital development committee is perceived to have a pivotal role in the continuity of services at district level but how they exercise that role is mixed. Where the HDC is active and engaged and there is good leadership they actively seek alternative sources of funding to continue financing services whilst awaiting budget release. Whilst some hospitals have strong committees, often they are weak, and can in some circumstances have a detrimental effect on service provision.

A key challenge is that many of the HDCs, whilst empowered to manage hospitals are not populated by people who have the appropriate skills and expertise. There is no common definition or tools that set the standard for how the facility should be managed. A view was expressed by a central interviewee that because their role is so crucial in creating the enabling environment for service providers the capacity of the HDCs should be developed.

Financial oversight

Budgeting and the CEONC fund

The central interviewees explained that the majority of the CEONC fund is provided by the government (although the budget in some years has been topped up by bilateral agencies such as the Department for International Development). Overall, the pot of available funding is determined by the number of districts in receipt of the fund which has increased year on year since its inception in 2008. The budget is developed by the FHD and then this is submitted to the MoHP who in turn submit it to the MoF and the NPC. Each year the total envelope for the CEONC fund has been increased as the number of service sites has expanded, although the total budgets for individual districts may have actually decreased. The exception was 2015 when the budget was cut to divert money to the earthquake relief.

There are several key challenges experienced by the FHD with this approach that indicate the complexity of the system. Firstly, the MoF can limit the budget that gets allocated for the CEONC budget, and they do this based on expenditure in past years. However, as the financial reports from the districts show, expenditure reporting can be unreliable. Further, this approach does not take into account that delayed budget release may have been the reason for spending shortfalls.

“They say that when 2 years back we had Rs.27 thousands budget allocated then Ministry of Health was only able to utilize 23 thousands. So, next time when we asked for 35 thousand and the MoF said when we gave you 27 you only utilise 23 then why shall I give you 35, I will not give you.” CI1

“Some problems are there because finance allocate budget from July, but we are getting budget funds only after 6 months, so for 6 months our programme collapses. The MoF take back the money and say you are not utilising. I told them send the money in proper time then it will be utilised in entire 12 months. This is the quarrel between the ministry of health and finance minister”CI8

Secondly, departments of the MoHP have to write and provide documentation on how much fund is needed to the MoF via the MoHP. The MoF and MoHP will then call the director and programme manager to discuss the budget and funding requirements. If the director cannot adequately argue the financing case, the budget can be cut. This can be difficult in an environment of frequent HR changes at senior levels in the DoHS and MoHP when inexperienced staff are expected to argue the case.

“All departments write and send documentation on how much budget is needed to the MOF through the MoHP. The MoF call the director and programme manager and discuss the need for this fund. If you can’t advocate and your explanation isn’t good they can cut the budget. For example, this year the budget was 9 crore but after 15 days they cut the budget because the director changed and the new director could not adequately advocate to the planning person.”

CI1

Thirdly, the budget may be allocated to more districts than is necessary or inappropriate sums may be allocated. This is because districts are not consulted and allocations are subject to political decision.

Fourthly, in practice as the evidence from the case studies shows the financial data available to the FHD is unreliable, but none of the central interviewees mentioned this.

The grant allocations to districts are calculated by the FHD after receiving a total budget allocation for the year. Distribution is based on the personal knowledge of the needs of the district by the CEONC mentor and the buoyancy of the local HR market.

The central interviewee said that districts may contact those developing the budget in the FHD to say that they have specific requirements, but this is ad hoc and there is no formal process in place to take into account their requests. Currently, the processes for developing the grant allocations are purely input based with no linkage to activity or service provision. There is no standardised allocation formula which takes into account, for example, the size of the local population or the distance between the birthing centres or health posts and the referral facilities. No account is taken of alternative sources of finance such as the hospital budget or local HDC funds.

“we calculate here and on the basis of whether a doctor is available or not similarly anaesthesia assistant, OT nurse, peon, lab assistant are there or not on that basis we put money.” (CI6)

“After getting bulk amount i.e. 9 crore like that then I email the people [in the FHD] who are heavily involved for the division of this budget.....they will sit together and display the districts. Suppose it is hard to find doctor in Dolpa so put more budget, easy to find doctors in Bhaktapur put less budget, equipment and these things they will sit and make the planning.” (CI8)

Financial management during the year

Financial management of the fund from the FHD is limited and there is no in-depth monitoring of the outputs or outcomes of the programme against financial inputs. Financial monitoring is largely done by the State auditor or by Ministry of Finance internal auditors, not by the FHD. The MoHP focuses on whether funds have been spent in line with the budget and there is no link with the programme aims or objectives. In practice the CEONC fund is only represented by a single line item in the budget and therefore there is no detailed on how the CEONC fund is actually being spent (see below section on financial reporting).

Originally the concept of the fund was to provide a flexible pot of money that the districts could spend in line with their needs. The grant would enable the districts to supplement their recurrent budgets through contracting staff without placing an additional financial liability on the government's finances as a result of financing permanent staff. However, due to a nervousness about how the funding would be utilised and potentially misused if the districts were autonomous increasingly strict implementation guidelines have been developed that restrict the districts to purely filling gaps on a pre-determined list of requirements.

“if you put a kind of flexible fund that's very good I mean then you would be able to mobilize for different things but sometimes it might be misused and now the implementation guideline is also quite strict I think the concept was to give that pool of flexible fund so that they can spend as they need but I think as I said if a leader is not qualified to be a leader then it makes a lot of difference.” (CI4)

A key challenge to the delivery of the CEONC programme is the delayed release of funds from the central level. Several interviewees argued that the solution to limiting the impact of the delays in budget release lay not at the central level, but in the districts. Where leadership at the district level was strong, the interviewees felt this was a key factor in whether the districts would commit their own money to continuing services whilst awaiting the arrival of the funds.

“if there is very strong people, output oriented people, in the district, they will find ways to continue their doctors, nurses and others.....If chief of the hospital is lazy, and budget is not coming and thinks why should I take risks.” (CI8)

The FHD has tried to motivate the districts to spend their own finances to bridge the gap in funds distribution, by sending a letter signed by the Director of the FHD to confirm that they will be reimbursed for any expenditure they make that would be covered by the grant allocation. This has had varied success with some districts accepting the legal basis for the letter and others, who are more risk averse, still awaiting the actual transfer of money. This delay in release of funds, however, is not restricted to the CEONC programme and the FHD, and other programmes and divisions have had more success in encouraging districts to bridge the funding gaps. However, not all FHDs have funds available but this appeared not to be recognised.

Financial reporting

Financial reporting had, prior to the introduction of TABUCS been very unclear. The District would send financial reports that aggregated all expenditure within the health sector at district level. The programmatic breakdown of expenditure wasn't visible to the FHD, despite them financing various activities. However, the FHD has made little attempt to understand expenditure against the fund. No separate reporting mechanism was implemented when the fund was established in 2008 that could track expenditure. A financial reporting mechanism was only initiated in July 2014 and at the point of data collection, not all districts were reporting their expenditure and no one in the FHD had been allocated responsibility for this process. TABUCS is a new financial accounting system being introduced across the health sector. This system will at least detail expenditure against the CEONC fund as an individual line item (although it is not possible to break this down further to identify what funds have been spent on HR, infrastructure, equipment and supplies etc.). However, the system is new

and not everyone understands it and can confuse spending on CEONC activity with spending from other funds.

Appendix 7: Overview of structure of the health system in Nepal (pre-federalism)

This appendix gives a brief overview of the structure of the health system in Nepal to aid the reader to understand the context in which CEONC services are delivered. Nepal has recently undergone a move towards a federalised system of government. As the research was undertaken pre-federalisation, this appendix describes the health and administrative system at the time of the research i.e. pre-federalism. It is not intended as a complete and thorough analysis of the Nepal health system.

Development Context of Nepal

Nepal is an economically poor country. On the Human Development Index (HDI) (a metric developed by the UN to assess the social and economic development levels of countries) Nepal has a score of 0.548 (in contrast, Norway at the top of the index has a score of 0.944). This means it ranks 145 among 188 countries for HDI, the same level as Kenya and slightly above Pakistan, Myanmar and Angola (UNDP, 2015). Nepal has a population of nearly 28.17 million, nearly 83% of whom live in rural areas and over 25% of the population live below the poverty line (World Bank, 2015; Bhattarai et al, 2008).

Administrative organisation of Nepal and its healthcare context

Administratively, Nepal is divided into 75 districts. The districts are regrouped into 14 administrative Zones and the Zones are further regrouped into 5 Developmental Regions; Eastern, Central, Western, Mid-western and Far-western (See below map) (Rai et al, 2001).

Map of Nepal: Administrative Division



From: <https://www.mapsland.com/maps/asia/nepal/detailed-administrative-divisions-map-of-nepal.jpg>

Health policy environment in Nepal

The current health policy environment in Nepal is framed by its commitments to delivering the Poverty Reduction Strategy and the MDGs and looking forward to the SDGs. Guided by both the National Health Policy of 1991 and the Second Long Term Health Plan 1997-2017, the government put in place the first Nepal Health Sector Programme (NHSP-I) as its implementation plan for the period 2005 - 2010. The second sector programme for the period 2010-2015 (NHSP-II) was largely seen as an extension of the previous one, however, with greater emphasis on partnerships, local governance, decentralized service delivery and equitable access to essential health care services including maternal health services. A new strategy, the Nepal Health Sector Strategy (2015-2020) (NHSS) has recently been completed after an extensive series of consultations with a wide variety of stakeholders at all levels of the health system.

MNH remains a prominent part of NHSS with two of the eleven key targets measuring the maternal mortality ratio and the neonatal mortality rate (MoHP, 2015a). NHSS also establishes the aim for all 75 districts to have at least one CEONC site by 2018 (*ibid*). However, continuing challenges are recognised in the NHSS that need to be addressed and that have a direct impact on the ability of women to access CEONC services. There are wide variations in health service availability, utilisation and health status across different socio-economic and geographical population groups, indicating the challenge of access and equity (*ibid*). This stems from a variety of reasons, but prominently the persistently inequitable distribution of the health workforce with about half concentrated in the central region, dropping to just 7% in the far-western region (*ibid*).

There is also a critical need for improvements in the financing of health facilities including to grant distribution mechanisms, the timely disbursement of grants, improvements in financial management systems at all levels (including the training of all officials contributing to the information contained in the financial management system), and in the strengthening of procurement systems at central and district levels (Tiwari et al, 2011). The MoHP's ability to address financial management concerns is hampered by the existence of different financing arrangements for different aspects of health expenditure, by late settlement of budgetary allocations, lack of coherent information about actual spending by hospitals, by the existence of off-budget and off programme funding (i.e. funds that are not reported or run through the official government budget management system such as those that are funded directly by donor agencies), and weak forecasting of external assistance by development partners (*ibid*). The implementation of reforms to improve financial arrangements have become bound up with political discussions about the introduction of a federal structure for the state. NHSS is designed to accommodate this. Restructuring covers decentralisation and strengthening local health governance, and defines the health sector roles of central, regional (or provincial) and local tiers of the government. The aim is to secure marked improvements in the health and well-being of the nation (MoHP, 2015c).

Structure, financing and human resource management

Structure

The government health service operates at national, regional, zonal, district levels and below (e.g. primary healthcare centres, health posts, sub health posts), as well as at community level (NHSSP, 2012). The health system is highly centralized with major policy decisions regarding planning and financing taken at central level (Dhakal et al, 2009). The MoHP has ultimate responsibility for the oversight, governance and policy environment under which the health system operates (MoHP, 2014). The Department of Health Services (DoHS) is a department of the MoHP and is responsible for delivering preventive and curative health services throughout Nepal and the promotion of health services. Within the DoHS, the Family Health Division (FHD) has responsibility for overseeing the provision of maternal and newborn care services (DoHS, 2014). At the district level, depending on the size of the district hospital, responsibility for all health activities including the organization and management of district hospitals, PHCCs, HPs and SHPs lies with either the District Health Offices (DHO) (if the hospital is a 15 or 25 bed facility) or the District Public Health Offices (DPHO) (if the hospital is a 50-bed facility). The DHO/DPHO has responsibility for administration of the budget and human resources, planning, monitoring and evaluation of district health service activities and supervision of health facilities activities and the activities of the peripheral health staff. There are 55 DHOs (often physically located at the hospital) and 20 DPHOs (often situated separately from the hospital) (DoHS, 2014). The DPHO has less direct management responsibility for the hospital. The below table shows the number of public hospitals, PHCCs, HPs and SHPs providing health services.

Type, Function and Number of Public Health Facilities

Type of facility	Function	2014
Central, Regional and sub-regional level hospitals	Provide tertiary care services. These hospitals provide a wide range of curative services through a variety of health-workers, physicians and specialists in particular. These are located in cities and the majority of them are in Kathmandu. There are specialty hospitals for heart disease, mental illness, maternity hospital, tropical and infectious disease, and children's diseases.	13
Zonal and District hospitals	These hospitals are located in cities and provide in-patient and laboratory services for secondary care. The district and zonal hospitals have at least 25 beds and are staffed with "upper-level" health workers i.e. one specialist and three medical officers along with staff nurses and paramedics. They should provide CEONC services 24/7	10 Zonal 65 District
Primary Health Care Centres	PHCCs offer primary care services including BEONC and are staffed by "upper level workers" i.e. one physician and staff nurses	202

	and “mid-level” health workers i.e. Health Assistant, Auxiliary Nurse Midwife and Auxiliary Health Worker.	
Health Posts and Sub-Health Posts	SHPs serve as referral centres for community based services. SHPs and HPs have birthing centres; HPs monitor the activities of the SHPs in their geographic area in addition to offering services available in the SHPs. The HPs are staffed by “mid-level” health workers Health Assistants, Auxilliary Nurse Midwives/Mother and Child Health Worker and Auxillary Health Workiers.	3805

Source: DoHS, Annual Report, 2014/15

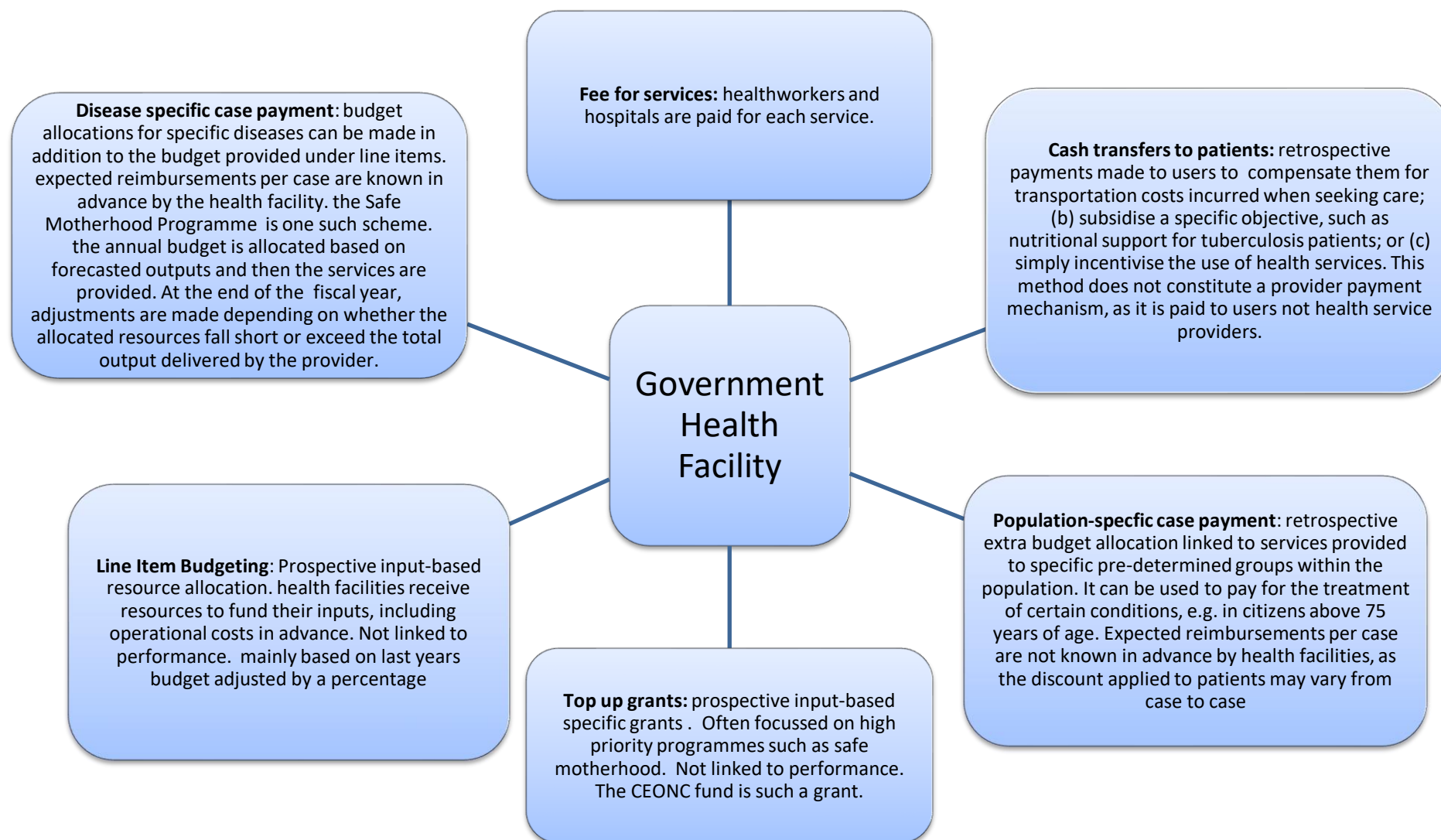
The SHP and HP are the first contact points for basic health service, as well as the point for community-based activities, such as outreach clinics and immunisation programmes. Referrals are made to each level above the SHP and HP, to PHCC, and to district, zonal and regional hospitals, and to specialty tertiary care centres in Kathmandu. Logistical, financial, supervisory, and technical support is provided from the centre to the periphery (NHSSP, 2012).

PHCCs, HPs and SHPs provide preventive and basic primary care at the village level (Bhusal et al, 2013). Hospitals provide secondary and tertiary care services with inpatient services in addition to primary care (Bhusal et al 2013). For the majority of districts, the district hospital is the focal delivery point for CEONC services, although CEONC service may also be delivered through zonal and regional hospitals, which have a greater allocation of budget and human resources. District hospitals are mostly 25-bed facilities, however recently several district hospitals have been upgraded to 50 bed hospitals. 25 bed hospitals fall under the management of the district health office and 50 bed hospitals are more autonomous.

Financing

Facilities are financed by a variety of mechanisms. These are principally by government; private (i.e. households and individuals) through out-of-pocket expenditure in the form of user fees or payment for non-government subsidised drugs at hospital run pharmacies; and financial support from foreign sources (to both the public and private sector) through foreign aid budgets (Uprety et al, 2016). Out-of-pocket expenditure is the largest source of funding in Nepal, followed by government expenditure (*ibid*). The figure below shows the variety of funding mechanisms for government health facilities in Nepal.

Financing mechanisms for government health facilities in Nepal



Source: Torres et al (2011) with amendment to include the top up grants which were not shown

There are no charges for BEONC or CEONC services: all such services are provided free at point of use. In terms of planning and budgeting, the government of Nepal works on an annual budgeting process. Under this system, public sector budgets are prepared annually, cover one year, are approved by the Parliament every year, and are executed over a one year period. Within the health sector, the MoHP's Policy, Planning and International Cooperation Division (PPICD) is responsible for the entire planning process. Many actors are engaged in the budget development and sign off process and it takes a period of at least seven months from initiation to completion (MoHP and NHSSP, 2015). The typical process and timeline is shown in the figure below.

Budget Development and Authorisation to spend process and timeline



Key:

- Action of the MoHP
- Action of the Departments and Divisions of the MoHP
- Action of the National Planning Commission
- Action of the MoF
- Action of Parliament

Source: MoHP AND NHSSP, 2015

For the district hospitals, their routine budgets are compiled and submitted through the District Development Committees (DDCs). The DDCs are responsible for the development of budgets across all sectors, not just health (Sigdel, 2014). In theory, the health office in a district should make its plan according to the directives issued by the MoHP and forward it to the DDC and the concerned division or department of the ministry (*ibid*). The table below shows the intended schedule of the district level planning and budget preparation process (this is rarely adhered to).

Schedule of district level plan and budget preparation

Date	Activities	Responsible authority
First week of November	Budget formulation guidelines and limitations sent to DDCs. Budget preparation started based on last year budget and need.	NPC/Ministry of Federal Affairs and Local Development (MoFALD)
First week of December	Ministry-wise guidelines sent to DDCs	NPC/MoFALD/MoHP
Second week of February	District-based budgets and programmes of line ministries prepared and submitted by district councils	DDC
First week of March	District programmes and budgets are sent in stipulated format to the NPC/MoFALD	DDC

Source: NHSSP and MoHP (2015)

However, in practice, there are several challenges to the budget preparation and implementation process in general. Firstly, annual plans and budgets that are developed by the DDCs are submitted directly to the NPC and hardly ever reach the MoHP (NHSSP and MoHP, 2015). This can result in less funding for the health sector due to the limited technical knowledge of the health sector within the DDCs and more pressure for other projects such as infrastructure (*ibid*). Indeed, discrepancies between the local-level budgetary demands and the allocation of the approved budget shows that central level institutions significantly govern the budget making process (Sigdel, 2014). Secondly, the entire budget cycle consists of budget formulation, budget approval, budget implementation and budget evaluation. As all of the processes are linked any delay in one phase affects the other. Further, in Nepal, the various process overlap.

This means that by the start of the fiscal year (mid-July) it is unlikely that Parliament has approved the budget; therefore the budget cannot begin to be implemented until at least September each year, if not later (*ibid*). The below table shows the date the budgets were submitted for approval to Parliament and the date they were approved from 2006 to 2013. This demonstrates part one of the “bottlenecks” experienced by the facilities in receiving funds as the CEONC fund is only released after the budget has been approved by Parliament.

Difference between date of budget submitted and approved in the Parliament

Fiscal year	Date budget submitted to Parliament	Date budget approved by Parliament
2006/07	July 12, 2006	August 23, 2006
2007/08	July 12, 2007	August 8, 2007
2008/09	July 14, 2008	November 1, 2008
2009/10	July 13, 2009	November 10, 2009
2010/11	July 12, 2010	February 8, 2011
2011/12	July 15, 2011	September 20, 2011
2012/13	July 15, 2012	April 9, 2013

Source: Sigdel, 2014

Human Resources

Whilst there is an increasing number of medical staff being trained, shortages of generalists and specialist physicians and nurses persist in the public sector, district hospitals and PHCCs in particular. Only about 9% of the doctors (generalists and specialists) are located in district hospitals while the majority are located in central hospitals (NHSSP, 2013).

In its workforce planning the MoHP allocates a certain number of permanent positions (sanctioned posts) across each cadre of medical staff to each type of facility. However, the numbers of sanctioned posts per facility are still based on the 1991 Health Policy, despite the fact that the population has increased by 45% since 1991 (Shrestha et al, 2012).

The Civil Service Act 1993 and the Nepal Health Service Act 1997 specify the rules and regulations for permanent and temporary contracts in the health sector. The Public Service Commission (PSC) is responsible for the permanent recruitment while the MoHP and its departments have the authority for appointing contract staffs. The majority of the public health workforce positions are “sanctioned” posts (over 80%) while the rest of the public health workforce is hired on contract (NHSSP, 2013).

The recruitment process in the public sector is long and complicated, requiring multiple levels of authorisation. As a result only about 50% of sanctioned posts for doctors and nurses were filled in district hospitals in 2012 (*ibid*). To compensate, health workers can be hired locally on temporary, contract or daily wage appointments. The ability of district hospitals to appoint temporary staff is affected by the budgetary allocations to hospitals and for CEONC services the specific CEONC fund allocations to hospitals (as well of course of the quality of the local contract market).

The Health Service Act specifies regulations for the transfer management system of the health workforce, according to which employees can be transferred after they have worked in a remote area for two years or in the most remote area for a year. Transfers are made by the MoHP and in making those transfers consultation does not always occur with the district hospital affected. As a result, staff vacancies emerge which then can be difficult for the local hospital to fill, especially if there is only a limited local market in health professionals. In actual practice some staff transfers are based on political influence (*ibid*).

Additionally, local management does not have the authority to recruit or dismiss permanent staff which is the prerogative of the MoHP at the central or regional level (*ibid*). This makes the development of a local HR policy difficult to achieve.

The National Health Training Center (NHTC) is responsible for developing and providing in-service training. However, management of the training and selection of the most appropriate personnel for training has been a challenge. Whilst the government is committed to providing in-service training to staff and has allocated financial and human resources for the purpose, most of the training is supply driven as opposed to by organizational or individual needs. Additionally, there is no training program on management, human resources, data management and finance (*ibid*).

Appendix 8: Summary of Selected International Hospital Financing Mechanisms

This appendix gives a brief summary of a selection of hospital financing mechanisms to aid the reader to understand the nature of the CEONC fund as a financing mechanism. It is not intended as a complete and thorough analysis of all financing mechanisms.

Setting the healthcare budget

Globally, various mechanisms are employed to finance health care facilities. According to Mossialos et al. (2002) there are basically five forms of health financing available to any country. These are taxation; social health insurance; voluntary and private insurance; out-of-pocket or cash-and-carry; and donations. Which is the predominant source of funding depends upon the circumstances prevailing in different countries. However, in many countries the principle source of funding is tax based national government budgetary funds or funds generated from specific health taxes (Hepworth, 1984; Bennet et al, 2001; Mossialos et al, 2002). These are then allocated to the providers of medical services in a variety of ways depending upon the circumstances and traditions prevailing in a particular country, including who is responsible for actual medical service provision.

Where health care facilities are treated as part of the national budget (as in Nepal, although there are some private hospitals) those responsible for preparing the budgets (which would be a ministry and not the actual health facilities themselves) will be expected to conform to the budget rules and timetable and be subject to the overall budgetary constraints including the political priorities of the government. This may mean that restrictions could be imposed on how budgetary allocations are spent, e.g. funds included in the health care facilities budget for staffing may not be allocated for other purposes. Other restrictions may also apply, particularly over procurement. This means that on the allocation of budget funds to health care facilities the discretion of the management of those facilities is limited.

Exactly how the national healthcare budget is prepared will depend upon local arrangements. These arrangements may be 'top-down' or 'bottom up'. If the former the appropriate ministry will determine the share of available funds that is to be allocated to the different types of health facility within an overall total or ceiling that may be set by the government for all healthcare activity with that ceiling depending upon the government's political priorities. If the latter, then the likelihood is that individual health facilities will be asked to prepare draft budgets for submission to the central ministry who will amalgamate them and either accept them or modify them as part of its budget preparation for negotiation with the ministry of finance (Boadway et al, 2007). Either way a key factor in determining the totality of the healthcare budget will be the previous year's spending plus an allowance for inflation. However, that budget should also take into account demographic changes, changes in

government priorities and any other factors that are likely to influence the overall total (e.g. the consequences of meeting the millennium development goals).

The outcome of the negotiations with the ministry of finance will then determine what actual funding will be available to individual health facilities and may also determine any restrictions about how such funds may be used.

Once a national health budget has been determined a process will need to be established to allocate this budget over the different health facilities. This will be via some form of grant mechanism (specific or general grants). Some grant arrangements limit the flexibility of the recipient in how they use the funds (e.g. for investment purposes only) or they may leave all decisions about the utilisation of funds entirely to the recipient of those funds (Ensor et al, 2009; Sutherland, 2011; Witter, 2012; Mathauera et al 2013; Palmer et al, 2013; Financial and Fiscal Division, 2014). Some funding may also be 'ring-fenced' so that it can only be used for specific purposes, such as for the development of obstetric care.

Where health care facilities are funded direct from budgetary funds, whatever the distribution mechanism, these central funds can be, and often are, inadequate to meet the totality of health care needs and they are often supplemented in a variety of ways such as from user fees, fees for drugs, attendance fees and so on. In addition, hospitals may also be supported from local or regional government resources such as local taxes, and foreign aid support (Witter, 2012).

Grant mechanisms distributing budget funds to other public institutions

Different types of grant mechanism can be employed to allocate funds to individual health facilities or any other type of public organisation. For health facilities, only in some special circumstances would a central ministry seek to control directly how a facility actually managed its budgets.

Grant mechanisms have the advantage that they involve less central government involvement in the management process, even though the grant arrangements may impose limitations in how grant aid may be spent. There are two broad types of grant aid, general and specific grants.

A general grant is usually made available to a local or regional government or hospital or other type of public organisation to assist with the finance of its overall operations. Such a grant is not tied to any specific activity but can be used for any operational public purpose of the supported organisation (CIPFA, 2014).

General grants often contain two elements. One element may be used to equalise financial resources of public organisations and a second element may be used to provide financial support to meet their overall outgoings. The equalisation element usually is applied where public organisations have a significant proportion of 'own resources'. Both elements leave an

organisation to decide how to allocate funds, subject to any additional conditions which may be attached to the grant aid. This form of grant can have managerial and political advantages to the recipient public organisation but has the problem of how to devise the allocation formula, which in turn has managerial and political consequences for the central government. (With all grant arrangements there is the possibility of political involvement in the distribution process with the aim of favouring particular groups and only a strong civil society and parliamentary process can diminish the impact of this (Hepworth, 1984; Mossialos et al, 2002; Mathauer et al, 2013). General grant distribution formulae often use regression analysis to determine the distribution arrangements and in determining that formula governments often seek to agree the arrangements with representatives of the recipient organisations. However, sometimes general grants, along with specific grants are distributed as a percentage of approved expenditure. This then requires the government to become much more involved in operational managerial decisions. General grant funds may be used for supporting the financing of current and investment costs.

The term “specific grants” describes government grants, including supplementary and special grants, to local or regional governments, hospitals or other organisations. Such grants are usually made by the relevant ministry depending upon the purpose of the grant (Hepworth, 1984; Mossialos et al, 2002). Specific grants can only be used for a particular purpose specified in the grant arrangement. They cannot be used in aid of expenditure generally (unlike a general grant). They can be either percentage grants or unit grants, i.e. represent a specified percentage of expenditure (in which event they are often accompanied by other operational conditions). If a unit grant they usually represent a sum payable to support a particular unit of activity (such as per patient or per patient of a particular type) and the cost of the unit will be centrally determined. Specific grants give much less managerial freedom than general grants. A variation in the arrangements for the distribution of specific grants is that they can be distributed following some form of ‘bidding’ process, whereby public organisations make bids to central government which then allocates funds on the basis of the ‘quality’ of those bids.

Specific grants may be towards funding current expenditures, or specific items of expenditure, or for funding investment expenditure. (Hepworth, 1984; CIPFA, 2014) With all specific grants, no matter how constructed, the recipient organisation is usually expected to account for how it has used the funds and an external auditor is asked to verify these accounts. With general grants the recipients are also usually expected to adhere to high standards of accountability (Boadway et al, 2007).

The factors in the formulae for distributing any kind of grant can include general factors like population or numbers of children and old people, or sparsity or density or they can include factors which are specific to a particular service, such as diagnosis related groups (used in health allocation arrangements).

All of the arrangements for distributing grants have both advantages and disadvantages (O'Reilly, et al 2012; Mathauer et al, 2013). For example, specific grants allocated as a percentage of expenditure tend to encourage expenditure by the recipient at the expense of the central government thus causing the central government over time to start to impose restrictions on its usage. Unit grants depend upon the development of an appropriate costing arrangement and at best unit based grants can only be distributed on the basis of average unit costs (unless there is some particular reason not to do so) and wherever averages are used there will be those that gain and those that lose (Mossialos et al, 2002; Mathauer et al, 2013). A formula based grant depends upon the accuracy of the statistics which underpin the formula and the relationship between the formula and incidence of expenditure. Where the allocation is based upon 'bids', the 'fairness' of the distribution depends upon the total sum available and the ability of organisations to compile an effective bid (Hepworth, 1984; Mossialos et al, 2002; Mathauer et al, 2013).

However, apart from these different types of grant *ad hoc* arrangements may be made which fit into none of these categories and grant allocations can be made on a purely subjective basis. This *ad hoc* approach generates its own difficulties and not the least of these tends to be instability from one year to the next in the volume of funds available to a particular beneficiary.

Appendix 9: Table of Included Literature

Quality assessment tool:

Mixed methods studies: Tool: MMAT - Scores were awarded Low, Medium and High. Low indicates passed screening but responses were no or can't tell to the mixed methods category and the criteria for both the qualitative and quantitative components; Medium indicates responses were yes to the mixed methods category and to some of either the qualitative and quantitative components, with the remaining as no or can't tell; High indicates responses were yes to the mixed methods category and to the majority of the criteria for both the qualitative and quantitative components

Qualitative studies: Tool: CASP qualitative – Scores were awarded Low, Medium and High. Low indicates answered no or can't tell to 8 or more CASP questions; Medium indicates answered no or can't tell to 4-7 questions; High indicates answered Yes to almost all the questions.

Quantitative studies: Tool: MMAT, quantitative components – Scores were awarded Low, Medium and High. Low indicates passed screening but responses were no or can't tell to the quantitative component questions; Medium indicates answers were no or can't tell to 3/5 questions; High indicates answered Yes to almost all the questions.

Country	Author & Year	Title	Research Method	MMAT / CASP Assessment	Reflections - these are edited text taken from the papers.
District Hospitals and Hospital Management					
Ghana	Matilda Aberese-Ako, Irene Akua Agyepong and Han van Dijk 2018	Leadership styles in two Ghanaian hospitals in a challenging environment	Qualitative: Qualitative ethnographic study	High	<p>Power is core to determining the style of leadership that managers can exercise in public health care institutions</p> <p>National and health policies should aim at giving hospital managers more power and autonomy in making decisions on critical resources including the right workforce mix, infrastructure development, drugs, medical supplies and equipment</p> <p>Adequate resources and financial support should be provided to boost managers' capacity to meet workers and hospitals' needs.</p> <p>Leadership styles impact staff motivation which in turn impacts quality of care and a hospital's reputation.</p>

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Cameroon	Keugoung, B; Macq, J; Buve, A; Meli, J; Criel, B 2013	The interface between the national tuberculosis control programme and district hospitals in Cameroon: missed opportunities for strengthening the local health system –a multiple case study	Mixed: Multiple case study, Mixed methods	High	<p>routine monitoring of the interface by managers of general health services and of programmes will provide avenues for optimizing the interaction between programmes and general health services by proactively searching and seizing all opportunities</p> <p>Well-managed DHs perform better in terms of tuberculosis control compared with those that are not well managed. Hospitals that function well with regard to their three dimensions (spatial, managerial, and technical) also have better tuberculosis control outputs.</p>
Ghana	Bruno Marchal, McDamien Dedzo, Guy Kegels 2010	Turning around an ailing district hospital: a realist evaluation of strategic changes at Ho Municipal Hospital (Ghana)	Mixed: A realist case study Mixed methods were used to collect data, including document review, in-depth interviews, group discussions, observations and a review of	High	<p>poor staff attitudes led to low quality of care and services, which was not accepted by the community. People stayed away and the subsequent weak revenue generation tied the hands of the management team. Inadequate maintenance further strained the already poor infrastructure. This all resulted in an organisational culture of fatalism,</p> <p>HiCom management can contribute to better performance. The hospital management team at Ho incorporated a balanced administrative and commitment- eliciting HR strategy within an overall change strategy. By triggering mechanisms of staff</p>

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			routine health information.		participation, empowerment and reciprocity, it instigated a U-turn in hospital performance
Sub-saharan Africa	Luke M. Funk, Dante M. Conley, William R. Berry, Atul A. Gawande 2013	Hospital Management Practices and Availability of Surgery in Sub-Saharan Africa: A Pilot Study of Three Hospitals	Qualitative: Structured interviews	High	the hospital with the highest management scores—the mission hospital—had the highest surgical volumes per operating room, the highest relative number of employees, surgeons, and surgical nurses, and no waiting list for essential surgery
Vietnam	Jonathan D. London 2013	The promises and perils of hospital autonomy Reform by decree in Viet Nam	Mixed: structured questionnaires, field visits and systematic in-depth semi-structured interviews	Medium	<ul style="list-style-type: none"> • Individual interests and capacities of local authorities and hospital management are critical in achieving autonomy • Even with autonomisation, effective HRM is limited. • Autonomisation doesn't automatically lead to improved quality of care and any moves towards this need to ensure appropriate statistical measurement and governance to prevent abuse of the system.
Kenya	Evelyn Waweru, Antony Opwora, Mitsuru Toda, Greg Fegan, Tansy Edwards, Catherine Goodman and Sassy Molyneux 2013	Are Health Facility Management Committees in Kenya ready to implement financial management tasks: findings from a nationally representative survey	Mixed: nationally representative sample of 248 public health centres and dispensaries in 24 districts in 2010. Data collection included surveys with in-charges (n = 248), HFMC members (n = 464) and facility users (n = 698), and	High	<p>Need to ensure that HFMC activities are transparent and members are accountable for how they use the money entrusted to them include training on financial management and targeted supportive supervision.</p> <p>It is also important for there to be accountability with members of the wider community aware of available funds, activities of the committee, and how they can air their views and contribute to better health services in their communities.</p>

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			record reviews. These data were supplemented by semi-structured interviews with district health managers in each district.		
District Hospital and Leadership					
South Africa	Puoane, Thandi; Cuming, Katie; Sanders, David; et al 2008	why do some hospitals achieve better care of severely malnourished children than others. Five - year follow-up of rural hospitals in Eastern Cape, South Africa	Mixed: Comparative Case study	High	Clear differences in institutional culture emerged between hospitals with low case-fatality rates and those with higher rates. The differences that affected quality of care were primarily in-service training, induction of new staff, attentiveness and assiduousness in the performance of tasks, supervision, teamwork, and audit and feedback systems, and, in these, ward sisters played a key role. Underlying factors were differences in leadership and management including teambuilding, support, and opportunities for interaction and information-sharing.
Multi-country	Martin McKee & Judith Healy 2000	The role of the hospital in a changing environment	Mixed: Secondary data from a major study undertaken by the	High	hospitals are complex human service organizations, and not just assemblies of industrial units to be reconfigured at will

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			European Observatory on Health Care Systems.		
South Africa	Mathole, T.; Lembani, M.; Jackson, D.; et al. 2018	Leadership and the functioning of maternal health services in two rural district hospitals in South Africa	Mixed: exploratory mixed-methods case study	High	<p>Key aspects of leadership style are use of data to improve service delivery, supportive leadership, teamwork</p> <p>strong emphasis on supportive supervision, nurturing relationships and in-service training in the successful hospital.</p> <p>Appropriate use of data helps the better performing facilities to understand and monitor programme performance. This facilitates accountability and better use of resources.</p> <p>hospital performance is often largely attributed to resource availability and hardware issues, such as finance, human resources, equipment, drugs and supplies; and excludes the software aspects (values, trust, power, interrelationships and others)</p> <p>Relationship with central government was not supportive.</p> <p>Performance management approaches employed</p>
South Africa	Couper ID, Hugo JF. 2005	Management of district hospitals-- exploring success.	Qualitative: Cross-sectional exploratory study using in-depth interviews with 21 managers of well-functioning district hospitals	Medium	<p>a leadership that facilitates openness, risk taking and reflection necessary for learning and communicates a compelling vision for the organisation creates the environment for establishing strong teams and greater accountability to the community</p>

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Health facility and health finance					
Nigeria	Uzochukwu, B., Onwujekwe, E., Mbachu, C., (...), Molyneux, S., Gilson, L. 2018	Accountability mechanisms for implementing a health financing option: The case of the basic health care provision fund (BHCPF) in Nigeria	Qualitative: National, state and LGA level respondents were interviewed using a semi structured tool	High	<p>system-wide approach to strengthening accountability - working across all tiers of the health system, engaging multiple actors and involving multiple mechanisms.</p> <p>Strengthening accountability demands action across the system as a whole, working with financing, performance and political accountability and combining external and internal mechanisms.</p> <p>It is important to monitor the usage of the Fund at the federal, state, and local levels which should be conducted regularly</p>
Kenya	Waweru E, Goodman C, Kedenge S, Tsofa B, Molyneux S. 2015	Tracking implementation and (un)intended consequences: a process evaluation of an innovative peripheral health facility financing mechanism in Kenya.	Mixed: A process evaluation of HSSF implementation based on a theory of change underpinning the intervention. Methods included interviews at national, district and facility levels, facility record reviews, a structured exit survey and a document review	High	<p>finance mechanisms can have a strong and broad positive impact on peripheral facilities</p> <p>facility funds can be overseen and used in a way that strengthens transparency and community involvement.</p> <p>need for clarity in the roles and responsibilities of key actors</p> <p>There are limits in achievements of one financing intervention in the context of wider challenges, including an unreliable drug supply, poor access to emergency transportation and shortages of qualified staff.</p> <p>There may be unintended consequences of financing mechanisms that need to be explored</p>
Kenya	Opwora, Antony; Kabare, Margaret; Molyneux, Sassy; et al.	Direct facility funding as a response to user fee reduction: implementation	Mixed: Quantitative data collection at 30 public health	high	improved health worker motivation, utilization and quality of care, improved utilisation and management of drugs and anecdotally a positive impact on funds utilisation.

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	2010	and perceived impact among Kenyan health centres and dispensaries	centres and dispensaries included a structured interview with the in-charge, record reviews and exit interviews. In addition, in-depth interviews were conducted with the in-charge and HFC members at 12 facilities, and with district staff and other stakeholders.		cases of corruption and misuse of funds were identified at a limited number of facilities. Training was reportedly inadequate, and no DFF guidelines were available at facility level, leading to confusion.
Health system and Nepal					
Nepal	Mark Zimmerman,a Sharada Shah,a Rabina Shakya,a Bal Sundar Chansi,a Kashim Shah,a Daniel Munday,b Nir Eyalc & Bruce Hayesa	A staff support programme for rural hospitals in Nepal	Mixed: Operations research	medium	<ul style="list-style-type: none"> • Bundles of interventions that support doctors in remote postings but also focus on performance facilitate retention. • Personal attributes of doctors are important.

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	2016				
Nepal	R Dhakal,1 S Ratanawijitrasi n2 and S Srithamrongsa wat 2009	Addressing the challenges to health sector decentralization in Nepal: an inquiry into the policy and implementation processes	Qualitative: Thirty seven key informants rich in experience and knowledge, seven focus group discussions, observation of six health facilities and analysis of about 25 key policy documents provided the data for this study.	medium	<ul style="list-style-type: none"> Overcoming challenges posed by political, legal, financial, institutional, administrative and human resource are critical for implementation of policy on decentralization in Nepal
Nepal	G Gurung, S Tuladhar 2013	Fostering good governance at peripheral public health facilities: an experience from Nepal	Mixed: Operations research – quantitative monitoring and baseline data and interviews.	medium	<ul style="list-style-type: none"> need to consider community engagement in health facility management Mobilization of local resources by HFOMCs Increased responsiveness and accountability towards the community And Inclusive health services.
Multi-country (included Nepal)	Bailey, P; Paxton A; Lobis, S; Fry D 2006	The availability of life-saving obstetric services in developing countries: An	Quantitative: Survey	medium	<ul style="list-style-type: none"> availability of staff, training, competence and confidence in performing various services, availability of supplies and equipment — can then be tackled by management and policies that support service provision

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		in-depth look at the signal functions for emergency obstetric care			
Grey literature					
Kenya, Uganda, Tanzania and Mozambique	Aloys Blasie' Ayako, 2006	Lessons of the Experience with Direct Support to Schools Mechanism: A Synthesis.	Qualitative: case studies in the four countries, using content analysis, a desk review, in-depth personal interviews	medium	<p>Since implementing transformation programs requires changing the culture of the system,</p> <p>the implementation of decentralized programs such as the DSS requires disaggregated data in order to ensure an accurate monitoring of the progress.</p> <p>limited participation of communities in implementation of the mechanism, weak monitoring activities by the MOE, lack of disaggregated education performance indicators for rural and urban areas, seemed to undermine the transparency and accountability of the mechanism</p>
Kenya	Antony Opwora, Margaret Kabare, Sassy Molyneux and Catherine Goodman 2009	The Implementation and Effects of Direct Facility Funding in Kenya's Health Centres and Dispensaries.	Mixed: A structured survey that included interviews, records review, and outpatient exit interviews. Focus group discussions and key informant interviews	high	<p>What are providers perceptions of the fund in relation to quality of care, working environment etc.</p> <p>What is the awareness of the community of the CEONC Fund and transparency of its management</p> <p>Is financial information relating to the fund displayed or reported anywhere?</p> <p>Who are the various actors engaged in managing the fund?</p> <p>What is the pattern of expenditure of the fund?</p> <p>What is the absorptive capacity of the facilities?</p> <p>What is the degree of autonomy that facilities have over the budget – is this the right amount?</p>

Country	Author & Year	Title	Research Method	MMAT / CASP Assessment	Reflections - these are edited text taken from the papers.
India	CINI 2009	Effective Utilization of National Rural Health Mission (NRHM) Flexi-Funds in Jharkhand: Facilitators, Barriers, and Options	Mixed: Policy analysis; financial data analysis, KAP study of fund managers and supervisors; comparison with one other state that has good flexi-fund utilisation	medium	<p>lack of proper training and orientation has aggravated underutilization of funds because these funds are considered by the new fund managers as 'government's money' and key functionaries, especially at the block as well as HSC and VHSC level have developed a fear of spending these funds. There is no mention of mechanisms for ensuring internal accountability for the use of flexifunds from national to sub-district level.</p> <p>Responsibility has been assigned for each step of the fund flow, but there is no mention of how to ensure that people responsible are adequately trained and enabled to fulfil their responsibility.</p>
Nepal	Devkota, M., G. Shakya, N. Pratap K.C., M. Dariang, M. T. Upadhyay, S. Karn, L. Hulton, M. Koblinsky (2011)	Readiness of Comprehensive Obstetric and Neonatal Emergency Care in Nepal,	Mixed: Service evaluation. In-depth interviews and secondary data collected from maternity and OT registers on service delivery statistics	medium	Unclear lines of responsibility for facility leadership; lack of knowledge on funding mechanisms; CEONC readiness impacted by intermittent funding flows, understand what makes one facility function and another not.
Kenya	Waweru, E, Goodman C, Kedenge S, Tsofa B, and Molyneux S. (2013)	Review of Health Sector Services Fund Implementation and Experience: interim tracking report.	Qualitative: review of policy documents, administrative reports, and research studies related to HSSF; and interviews with key stakeholders	low	<p>To run the fund there needs to be a focus on financial management and consideration of financial reporting.</p> <p>How will the CEONC fund be aligned to the devolution process?</p>

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Nepal	Suvedi, Bal Krishna, Ajit Pradhan, Sarah Barnett, Mahesh Puri, Shovana Rai Chitrakar, Pradeep Poudel, Sharad Sharma and Louise Hulton. 2009.	Nepal Maternal Mortality and Morbidity Study 2008/2009: Summary of Preliminary Findings.	Mixed: Community surveillance system; Maternal Death Reviews; facility and staff competency assessments; EOC monitoring; in-depth interviews and focus group discussions	high	<p>There were significant improvements in maternal care between 1998 and 2008 but these needed to be scaled up and sustained</p> <p>Training needs to be available to ensure that staff skills are sufficient and practised.</p> <p>Ad hoc staff transfers are an endemic problem.</p> <p>Good and understood referral pathways are critical to ensuring women get appropriate care.</p>